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## President's Address.

### THE HEALTH OF THE PEOPLE.

By J. B. G. MUIR,
*Hobart.*

THE phrase "the health of the people" is a very complex one, covering many factors, and is incidentally one beloved of politicians. It was used by Pericles in the fourth century B.C.—in the "Golden Age of Greece"—in his oration to the Athenian dead, wherein he defines health as "that state of moral, mental and physical well-being which enables a man to face any crisis in life with the utmost facility and grace". Many centuries later, Disraeli spoke on the health of the people, defining it as "the real foundation on which all their 'happiness' and all their power as a state depend".

In other words, besides including an important medical factor in so far as the physical health of the individual is concerned, the maintenance of the health of the people has progressively become a vital political and economic force throughout history. It has been neglected during some centuries, particularly the Middle Ages, but has steadily become an increasingly important factor in government, despite wars, revolution, conquests and alliances, until in these days of democratic government, the Welfare State providing some degree of social services has come to stay, and the adequate maintenance of these services and their gradual extension play a great part in securing the election of political parties to government.

It is particularly important that, in this country of approximately 10,000,000 people seeking constantly to expand population and at the same time create a stable

and strong economy, we should take exact note of our position in a world that has experienced extraordinary political changes during the last half century.

There are, at a modest calculation, today, about 2,700,000,000 people in the world, of whom approximately 53% are in Asia. China has about 600,000,000 of these, and despite a high annual mortality from infectious diseases, from natural disasters such as flood and drought and from political purges, her population is ever increasing, and a new and totalitarian government is steadily building up her economy and industrial potential, so that future expansionist tendencies must become a powerful force in the South East Pacific. It is, therefore, of great importance that the health of the Australian people be maintained at such a medical standard that at least mortality and morbidity will not interfere in any way with the economy of the country, and with its development and expansion as a nation.

As is frequently pointed out, Australia is the most sparsely populated of the civilized countries of the world, with a population density of only 3·02 persons to the square mile. Admittedly a large part of this continent—"the dead heart" of Australia—is quite uninhabitable, and any increase must be peripheral and of necessity slow, so that newcomers may be smoothly integrated into the country's social and economic life. However, when one notes that Asia (excluding the U.S.S.R.) has about 138 persons to the square mile, who even now cannot adequately be fed, it is obvious that sooner or later problems of expansion must occur, and that there will be a tendency to occupy empty space amongst land-hungry, over-crowded races.

The only way to counter this is to fill up such space as can be settled with a healthy population and homes, a policy which the Government is pursuing.

The Australian population is steadily increasing, both naturally and by immigration. Thus, considering figures for 1954, the crude birth rate was 22·50 per 1000, whereas the death rate was 9·10—an excess of births over deaths of 13·40 per 1000. This represented a natural population increase for that year alone of 120,451 persons. For the same year the increase by net migration was 37,528, so by comparison it may be seen that the natural increase of population is a healthy one. During the last ten years, post-war migration has added almost 1,200,000 people to Australia, chosen as healthy and likely to be satisfactory citizens. In the widest sense, the health of these people depends on modern public health measures, on decent housing and sanitation and on a proper standard of nutrition. This, of course, depends again on full employment, so that these essentials may be available to them all.

Our profession is directly or indirectly connected with all these aspects of the health of the populace in an advisory capacity, but directly and in a practical way with the health of the individual in all aspects of disease.

### Preventive Medicine.

The Australian public today accepts quarantine and public health services as a *sine qua non*; but many fail to realize that their development and maintenance at present high standards are costly, and due to the skill and experience of the medical personnel employed, and also to immediate "pooled" information on epidemiology from all parts of the world. This is largely coordinated today by the World Health Organization, through which countries provide and receive information on the occurrence and trend of local communicable diseases.

Regulations have been drawn up under the guidance of expert committees, which specialize in the control of pestilential diseases and in measures for their extirpation.

Epidemiological intelligence is transmitted internationally to all members of the W.H.O. Sanitary Convention so that they may be ready to meet any pandemics. (No information is received, however, from the U.S.S.R. and its satellites.)

The recent Asiatic influenza was expected well before it arrived.

When one remembers that 600 years ago, plague in the form of the Black Death (1348) ravaged the old world (Papal figures issued accounted for 42,836,486 corpses and in Europe alone 25,000,000 perished), it is difficult to envisage anything similar happening today, short of the mortality of a thermonuclear war, because of modern preventive medicine.

The great plague epidemic in London, in 1665, killed many thousands of citizens, but in this century, beyond mild outbreaks in Asia (1910-1911 in Manchuria), plague is comparatively rare and never seen in Australia. Cholera has an annual occurrence in epidemic form in the Far East with a high mortality, but again is not seen today in Australia.

### General Infectious Diseases.

General infectious diseases as seen here are of a relatively low order of virulence and are seldom fatal. Cases of typhoid are of rare occurrence, and smallpox cases only occur among the unvaccinated when infection slips through shipping quarantine, and are very rare.

One can remember cases of infantile diphtheria here in Hobart 15 years ago with a high mortality rate. The almost complete disappearance of the disease, due to immunization campaigns, has been marked until, with public apathy and a false sense of security, people have neglected to have their children immunized, and a recent outbreak with a number of fatalities has occurred, illustrating that vigilance—and public cooperation with medical health authorities—are essential to maintain the degree of public health we now enjoy. The campaign against tuberculosis has greatly reduced the death rate from this disease, and the incidence is dropping.

The success of the Salk vaccine campaign illustrates well the benefits that can attend the intensive application of prophylactic health measures in preventing the devastations of poliomyelitis, which has up to now carried a heavy morbidity and varying mortality among the youth of the country.

The everyday position of the health of the people is best illustrated by our vital statistics.

### Vital Statistics.

The following information on vital statistics is taken from *Demography*, 1954, Bulletin 72, by courtesy of the Commonwealth Statistician.

That the health of the Australian people is improving steadily is shown in our vital statistics: thus the mean age at death has increased from 41·54 years in 1900 to 1910, to 62·04 years in 1950, and to about 72 years today. The mean age at death in Tasmania is shown in the following tabulation:

| | | |
|---|---|---|
| 1900 | 41·54 | years |
| 1910 | 38·55 | years |
| 1920 | 44·25 | years |
| 1930 | 49·79 | years |
| 1940 | 53·08 | years |
| 1950 | 62·04 | years |
| 1958 | about 72 | years[1] |

### Causes of Death.

A consideration of recent mortality figures for this Commonwealth is illuminating; the figures resemble those of America and Great Britain.

The five most common causes of death, and the number of deaths recorded from them during the year 1955, were as shown in Table I. These figures relate to broad groupings of actual disease entities. For instance, heart disease includes diseases of the myocardium, heart valves and other parts of the heart.

Terminal illnesses require some comment in so far as the ordinary everyday life of this generation is concerned, as the treatment of the diseases in question in their onset and progress constitutes much of the average doctor's daily work.

Since modern medicine has reduced the mortality of tuberculosis and infectious disease, the diseases of "wear and tear" have become the chief causes of death, with heart disease ranking as the first.

[1] Expectation of life at birth is about 72 years.

Heart disease in all forms, including coronary disease, valvular disease, myocardial degeneration and hypertension, forms the principal group, affecting particularly the 45 years and over age group. Men predominate considerably—and just at the time when their family and business responsibilities are greatest.

Obesity plays it part, and the contentious question now is whether the high proportion of animal fats in the usual Australian dietary leading to a higher serum cholesterol level is largely to blame for the pathological changes in the intima of the arterioles leading to hypertension and the coronary group of deaths or not. Stress phases of modern life undoubtedly play a part in heart disease through hypertension, and the number of deaths from coronary thrombosis in time of great worry and mental tension is significant. If we consider at the same time cerebral vascular lesions as one of the commoner causes of death,

TABLE I.

*Figures for the Five Most Common Causes of Death, 1955.*

| Cause of Death. | Males. | Females. | Persons. |
|---|---|---|---|
| Heart disease .. .. .. | 16,382 | 11,303 | 27,685 |
| Malignant neoplasms, including neoplasms of lymphatic and hæmopoietic tissues .. .. | 6271 | 5615 | 11,886 |
| Vascular lesions affecting the central nervous system .. | 4811 | 6224 | 11,035 |
| Accidents .. .. .. | 3685 | 1398 | 5083 |
| Pneumonia .. .. .. | 1549 | 1176 | 2725 |

we find that cerebral hæmorrhage, embolism and thrombosis account for the majority of cases and are associated with hypertension and atheroma. In the United States, where there is the highest consumption of fat per person in the world, statistics show a much higher mortality from coronary disease than in Great Britain. This may be due to faster *tempo* of life in America than in the British Commonwealth.

Hunt has very succinctly described the régime for hypertensives as the avoidance of "fuss, fluster, fidget, flurry and fury"—difficult to observe in modern life.

An old Spanish proverb says that "a good diet cures more than the lancet", and indeed, the old Elizabethan saying that Diet, Quiet and Merriment are the best doctors is very true.

Perhaps the most amazing progress in medicine during recent years has been the direct surgical attack on valvular lesions of the heart and on the larger arteries. This has been possible only through the tremendous advances made in anæsthesia for thoracic surgery.

### *Cancer.*

Despite the great increase in our knowledge of cancer, it still remains a problem to modern medicine, and follows heart disease as the next common cause of death.

Modern research has effectively demonstrated the "carcinogens" of several varieties, whose final achievement after years may be the production of cancer in various body tissue. The striking increase in cancer of the lung in recent years and the recent research of Doll and Hill on the role of cigarette smoking as the cause of this increase, suggesting that chronic irritation by carcinogens in tobacco smoke is a predominating cause, are well known.

In further confirmation, the American Cancer Society has found that the death rate from cancer of the lung is 1000% higher in those who habitually smoke than in non-smokers. It is estimated that the death rate among "40 cigarettes a day smokers" is 64 times greater than among non-smokers.

Despite this, Table II, received through the courtesy of the Commonwealth Statistician, shows a steady increase in the consumption of tobacco in Australia, from 1954-1955 to 1956-1957.

The carcinogen in tobacco appears to require 20 years to act; hence the excessive smoking in the young people of both sexes today is distinctly ominous in regard to the future. However, the depressing statistics have failed to influence the habit.

A recent survey published by the World Health Organization shows that deaths from cancer of the breast have more than doubled in the past 30 years in Australia, New Zealand, South Africa, Denmark, Italy, Norway, Sweden and Holland. Cancer of the breast in women causes the death of about 7300 women in England and Wales each year, and is by far the leading cause of death in women in the mid-period of life. Kennaway, working this out on a daily basis, found that every day about 20 of the 13,500,000 women aged 30 years and over begin to develop this form of cancer.

At present, early diagnosis and extirpation of the growth by surgery or radiation therapy or a combination of the two before the disease is generalized, offer the only prospect of cure but the discovery that control of the metastases of certain hormone-dependent forms of the disease by antagonistic hormones is practical has opened a new and promising field of treatment, which may lead to a brighter future. Furthermore, recent research has led to general agreement that in this form of cancer several types of tumour are dependent for their survival in part or wholly upon hormones secreted from the ovaries, suprarenal glands and the pituitary gland, and that their removal will cause recession of the tumour, often for an appreciable period, with relief of pain.

One must also refer to the use of endocrines in the treatment of cancer of the prostate, which is perhaps the most successful example of hormone therapy. However, Burnet has pointed out that there is little ground for optimism about cancer. He considers that somatic cells being what they are, the impact of environment must lead inexorably to an accumulation of mutant cells, some of which will have malignant descendants if life persists long enough.

As the mean age at death increases, so will the incidence of cancer. However, one striking success has been the greatly improved end results of surgery generally, and particularly for intestinal cancer. In his Thomas Dixon

TABLE II.

*Consumption of Tobacco, etc., in Australia, 1954–1955 to 1956–1957.*

| Year. | Tobacco. (Pounds.) | Cigars. (Pounds.) | Cigarettes. (Pounds.) |
|---|---|---|---|
| 1954–1955 | 21,218,965 | 181,749 | 25,462,569 |
| 1955–1956 | 19,392,394 | 182,441 | 27,695,711 |
| 1956–1957 | 19,007,985 | 173,625 | 30,549,124 |

Lecture (1954), Warren Cole pointed out that during the past two or three decades the general post-operative mortality rate has decreased to one-third, to one-half the figure at the beginning of this period.

During this period, the technique in many of these operations has improved very little, if at all. Yet, the improvement has taken place owing primarily to the better knowledge of surgical physiology, and to the use of antibiotics. The latter is much less important than the former. For example, cachexia due to malnutrition is one of the most important obstacles to recovery in sick patients, particularly those with gastro-intestinal disease. Anæmia, dehydration and electrolytic deficiency are likewise important, and must all be treated before operation.

Acute cardiac disease is a serious threat to survival after a major operation, but the patient with coronary thrombosis will tolerate a remarkably serious operation if four to six months have elapsed since his occlusion. We have learned that elderly patients tolerate major operations very well, provided that complications and complicating diseases are treated effectively beforehand.

### *Accidents.*

It is a sobering thought that our road accident figures are becoming steadily worse, and have far passed industrial accidents in fatalities. Australia's deaths on the roads have risen from under 1500 per year in 1938-1939 to over

2000 in 1954, and are increasing. Injuries have risen from under 26,000 to above 48,000.

Some years ago Southby pointed out that during the five-year period from 1944-1945 to 1948-1949, there were no less than 6399 persons killed and 110,888 persons injured in Australian road accidents, and Norris has recently stated that road accidents are costing Australian hospitals £3,500,000 every year, and are one of the principal causes of keeping hospital beds full. He estimates that road accident victims cause a loss of nearly 100,000 working weeks each year.

In this small State alone, in 1955, 62 persons died from motor-vehicle accidents. Of these, 17 were aged under 20 years, 28 were in the age group 20 to 45 years, and 17 were aged 65 years and over. It will be noted that 69% were people in the younger and active stage of life. In the recent Christmas holiday week, more than 50 people were killed on the roads throughout Australia.

However, Australia is not unique in accident incidence. In 1955 in Britain, 5526 people were killed in traffic accidents, 62,106 were notified as having suffered serious injuries, and a further 200,290 were reported as having been slightly injured. In America 40,000 deaths occurred in traffic accidents last year, with an astronomical number of serious but not fatal injuries.

The casualties in the younger age groups are serious from the future population standpoint, particularly those occurring in childhood; these are the most serious of all, because in a high proportion of cases some lack of supervision or actual carelessness is present. Thus in the three age groups one to four years, five to nine years and 10 to 14 years, traffic accidents are the most important cause of death. After road accidents, accidental poisoning is important in the one to four years group, whilst drowning accidents claim a significant number of deaths in all three age groups.

Falls and domestic burns and scalds form the second most important type of accident in children. These it may be said, are all avoidable; but they occur and increase in number each year, despite road safety councils and campaigns to put householders with children on their guard against domestic accidents. And so one can continue discussing accident deaths, and it seems to be impossible to live and work in a mechanical age without a certain definite toll of life and injury.

### Morbidity.

Despite these depressing considerations of the principal causes of death, medical science has increased the span of man's existence very materially during the last half century. However, it is a lengthening of life—that is, a greater proportion of elderly people surviving to later age groups, rather than any prevention of old age. There is no elixir of youth, and tissues degenerate and arteries become atheromatous and lungs emphysematous just as frequently as before.

Advances in medical knowledge and new drugs have cured or prolonged life in many diseases. Infantile and maternal mortality have been greatly reduced, and surgery, with the assistance of great advances in modern anæsthesia, has achieved remarkable feats, particularly in hitherto inaccessible parts of the body. All this has happened in a short space of time.

What are the principal illnesses which the family doctor of today is called upon to attend?

In addition to the various stages of those considered already, the following figures taken from the third annual report of the Ministry of National Insurance (1952), Great Britain, are of interest, being based on a 10% sample of certificates for "illness incapacity" issued in 1950:

| | |
|---|---|
| Influenza | 17% |
| Upper respiratory infections | 7% |
| Bronchitis and pneumonia | 10% |
| Pneumatic conditions | 9% |
| Septic conditions | 6% |
| Gastro-intestinal conditions | 10% |

Figures from other years are similar, particularly in influenza and respiratory infections, which always top the list. Australian morbidity figures must be very similar, although no reviews have so far been published from private practice here.

Are we becoming a healthier people? Or are we less disease-resistant than in the past?

A recent paper by Ffrancon Roberts compares morbidity figures taken from Manchester in the years 1826-1830 with figures from the same area in 1951-1954. These show a great increase in what we refer to as upper respiratory tract infections, and also a considerable increase in skin conditions and gastro-intestinal disease, in just over a century.

Roberts points out that 5,600,000 man-days are lost annually to industry alone in the Manchester area through sickness—and this, despite the National Health Service with the provision of (free) doctors, countless nurses, medicines and free hospitals. Man's vulnerability to respiratory tract infections appears to remain a permanent source of illness.

Mortality from these ailments is always greater in the older age groups and in the winter months, and also during the influenza epidemics. A particularly high death rate was recorded during the weeks of severe fog—or "smog"—which occurred both in December, 1952, and again in January, 1956, in the London area, in which heavy fog contained a high percentage of waste industrial gases.

There were 4000 deaths over the average seasonal mortality in December, 1952, and a further 1000 in January, 1956 (Logan). It would appear, therefore, that any atmospheric change of this nature greatly increases the ordinary mortality rate from pulmonary disease, and also increases the incidence of exacerbations in chronic tuberculosis and in lung cancer (subsequently diagnosed).

Atmospheric pollution by industrial gases is becoming manifest in Australia's larger cities, and a warning recently sounded in an address by Bell emphasizes this important hazard to health, which should be dealt with now by industrial planning and smoke abatement measures as Australia's industry expands.

Another large group of diseases are those occurring under the heading of "gastro-intestinal". Man must eat to live, and he who cannot enjoy a meal is indeed a pathetic figure. Whilst many of these are infections, the old problems of chronic gastritis and peptic ulceration remain. The matter was one of the commonest causes of invalidism from the army during the recent war, and the intermittent breakdowns associated with it in ordinary civil life are familiar to all of us. The numerous advertisements for patent remedies for indigestion, heartburn, etc., appearing in the daily papers, are an indication of the frequency of such complaints. They comprise a large proportion of public hospital out-patient attendances and, in their more major stages, admissions to hospital for investigations and treatment. Are our modern dietetic habits responsible? Probably no more than our thirsts.

In 1955-1956, 226,000,000 gallons of beer were required to slake the national thirst, and from the therapeutic standpoint, digestion was aided by 1,129,125 pounds of stomach and saline powders.

There is no doubt that peptic ulcer is one of the end results of "stress" in people so predisposed. During the war, it was noted that an increase in hospital admissions for perforated peptic ulcer always followed severe air-raids in industrial areas in Great Britain, suggesting that mental stress plays a part.

Incapacity resulting from anxiety states or "stress reactions" generally is today formidable, particularly as they appear finally to lead to organic disease. Thus, shortly after the war, the Treasury doctor in England reported that occupational diseases in the higher Civil Service were coronary thrombosis, peptic ulcers and anxiety neuroses.

It has been estimated that about 25% of general practitioners' patients in England, possibly more, fall into the category of nervous states, and in Australia the proportion is probably similar.

It is an interesting side-light on the prevalence of anxiety states, or conditions of nervous tension prevailing in modern general practice, to consider Professor Dunlop's

paper on a survey of representative prescriptions used by doctors in the National Health Service in England (1952). In this, he pointed out as a significant commentary on present-day conditions that by far the largest single group of all drugs prescribed (15%) comprised hypnotics and sedatives. Following them come "stomachics"—alkaline powders, etc.—and tonics (9%). Indeed, these two groups alone formed one-third of all prescriptions issued. As a result of his survey, Dunlop concludes that applied pharmacology and therapeutics do not receive the attention in the medical curriculum which they should.

It is a melancholy reflection on our *tempo* of life today that nearly 36% of public hospital beds are occupied by patients with severe mental disease, and that more beds are urgently required for these patients, particularly as modern methods of treatment allow many patients to return to family social life.

I have tried to give a brief summary of the commoner ailments for which the ordinary man in the street seeks medical advice. In Australia the general every-day morbidity can be studied by a consideration of out-patient attendances and the nature of admissions to public hospitals, and presumably cases in private general practice follow a similar pattern.

### DOCTORS.

Is the medical care provided and available adequate for the population? Are there sufficient medical men to provide satisfactory medical care?

Through the kind courtesy of the General Secretary of the Federal Council of the British Medical Association in Australia, I have been given the figures of a survey made by the British Medical Association in 1957, which showed that there are approximately 10,500 doctors registered in Australia. The proportion who are in administrative or government work is approximately 20%, or 2100. There is one specialist to every three doctors, the proportion of specialists being about 20% of the total number of practitioners.

Every year the proportion of doctors who are lost to the profession through death or retirement is about 3% of the total number registered—that is, a loss of about 200 each year. With the above-mentioned population, it means that one doctor is available for approximately each 900 people, as in Great Britain and Canada, although the local distribution in country districts as compared with towns is not similar.

#### Is the Supply Being Maintained?

Are our medical schools turning out sufficient new graduates each year, so that no future shortage of doctors is likely?

That there will be no lack of Australian graduates in medicine in the future is shown by the fact that the number of students in the faculties of medicine in Australian universities in 1955, as revealed in the latest publication of "Facts and Figures" by the Department of the Interior, was 3516.

The number of graduates in medicine from the Australian universities has not been less than 450 a year for some years, and when allowance is made for a wastage of 2%—a liberal allowance—the number of local graduates will increase each year, in Australia, by at least 200.

Over recent years there has been a steady flow of graduates from Great Britain to Australia, and this flow has increased. For example, during the past twelve months, 48 practitioners from other parts of the British Commonwealth have been registered in New South Wales, and from inquiries which are constantly being received from Great Britain, this number will increase during the next 12 months. There is thus no shortage of doctors in Australia.

There is at present overcrowding in our medical schools, and it appears that construction of another will eventually be necessary. The "bottle-neck" appears to be in the pre-clinical subjects, in which teaching and laboratory facilities available necessitates some limitation in numbers. In some universities this appears to be achieved by a high rate of failures in the first year, and the University Commission which has recently been inquiring into Australian universities has rather staggered us by announcing that 40% of admitted students do not finish this course. Medicine is not so badly affected; but it is a debatable question whether or not an experienced selection committee should decide who should be admitted to medicine from those with satisfactory matriculation requirements. This has appeared to work satisfactorily in England, where approximately one out of eight applicants is admitted.

Over the principal entrance to the University of Salamanca is a sign which reads: "What nature hath denied, this University cannot provide." For the sake of potentially good doctors of the future, an experienced selection of candidates for medicine might eliminate that overcrowding by subsequently unsuccessful students which now debars some of those better fitted for medical training, psychologically and by tradition.

#### Does the Course of Training in our Medical Schools Measure up to the Best Standards in the World?

Our own course of training is based on, and practically identical with, that of medical schools in Great Britain.

There is a tendency today amongst educationalists to decry the commencement of medical training at the age of 18 years. The medical course is criticized as being too narrowly scientific and physiological, and not to be undertaken before the student is trained to logical thought and deduction. It is thought that he should, as in America, study the "humanities" and do an arts course before proceeding to medicine.

If we consider that the average student starts his course in medicine at 18 years, and takes the routine six years to graduate, he will be 24 years old on registration. He will then spend at least one or two years as a hospital resident medical officer before commencng private practice, which brings him to the age of 26 years. If we take the limit of a man's years of productivity as 65 years, more than one-third of his life has been spent training for his profession. Furthermore, medical science is developing so rapidly today that constant post-graduate work is essential to every doctor throughout the whole of his active professional life.

Should the medical graduate decide to specialize—and today there are of necessity many branches of medicine in which specialization has developed—a prescribed course of advanced study and training is required by the various colleges, which adds further years to the training period of the medical man, so that he may well be 30 years of age before he practises in his speciality and becomes attached to a hospital in this capacity.

The end product of Australian medical schools is probably a graduate who compares favourably with the highest standard of general practitioner in the world, and our specialists are regarded favourably in comparison with those in other countries. One has only to mention the help they have given in South East Asia through the Colombo plan, and one can indeed state categorically that there is no special medical or surgical treatment carried out in the world today that is not available in the leading hospitals of this Commonwealth.

Of recent years there has been a lot of criticism regarding medical education, particularly as to whether or not the curriculum is overloaded with certain subjects of medical science which the general practitioner is unlikely to require, and which, with the wide scientific development of medical diagnosis and treatment of today, are more the province of the specialist in branches of medicine or surgery than of the general practitioners, who are unlikely to require them.

In 1953, the first Congress on Medical Education was held in London under the auspices of the World Medical Association, with the late Sir Lionel Whitby as president. Many views were expressed on the necessity or otherwise of modifying the present medical course, to make it more clinical and practical than academic; nothing very radical was proposed. However, as the president said, most teachers in the medical curriculum are very allergic to cuts in their own subjects, and no definite decisions were

recommended. The value of the congress lay in the various viewpoints expressed by world authorities on medical training, and subsequent congresses may lead to an international modernization of the medical course. A report and recommendations are awaited from the General Medical Council of Great Britain.

Our universities in Australia produce an efficient man from a high standard of medical knowledge and training on registration, and it will be to the very grave detriment of the health of the people if this standard of registration is lowered in any way by political direction, by-passing our statutory medical boards' requirements.

When any graduate leaves his hospital, even with one or two years' post-graduate experience, despite his medical efficiency he has still a lot to learn in what is known as "social medicine". He is accustomed to seeing and treating, under his honorary's care, the patients in a ward or out-patient department with every method of diagnosis—biochemical, pathological and radiological—at his ready beck and call.

When he is in general practice, however, he finds himself in quite a different environment. He has to treat sickness in the home, with the family and anxious relatives looking on and proffering advice. He has to learn that family life and the home must still be organized and run, despite the fact that the bread-winner or his wife is incapacitated. For instance, in a long illness with only sickness unemployment pay coming in, can a patient afford the various pathological or biochemical tests which are essential to the proper conduct of his case? Or should he be moved to a public hospital—or a private one if he can afford it? Is home nursing, with its attendant domestic difficulties, available and practical? Is a bed available in a hospital? (Recently bed situations have been particularly acute in private hospitals.) He must learn that, when in doubt, seeking another opinion is not regarded as ignorance, but as an earnest desire to do the best for his patient. He must inspire confidence in his decisions and advice, and learn that this is best achieved by explaining, if not to the patient, at least to the family, what is wrong and what the prognosis is. Too often one hears the complaint "They never tell you anything" in reference to doctors and to hospitals. He may be treating an incurable condition, and he has to make the declining weeks of the patient's life as bearable as possible.

Finally, if death comes suddenly, the sympathetic and competent family doctor can, as Barber puts it, "make all the difference between black, unrelieved and hopeless tragedy, and a sad but natural event, which draws the rest of the family together".

There is a great deal to be said for final-year students' being attached to experienced practitioners for a few months, so that they learn how to deal with such important matters practically and tactfully. They should, in fact, learn practically the psychology of general practice, and probably every specialist should have an experience of general practice before he specializes.

### THE COST OF MEDICAL CARE.

Medical practice today has become an exact and highly scientific affair. Whilst many of the practitioner's cases may be routine minor ailments, he has constantly to be on the watch for those in which specialist's advice and pathological, biochemical or radiological examinations are required and, furthermore, are expected, by a public much more enlightened and critical of medical care than they were 50 years ago.

As a comparison, one is reminded of the famous picture by Sir Luke Fildes showing a child lying desperately ill in a cottage, probably with pneumonia approaching the crisis, with the family doctor sitting beside the bed, watching the patient intently, whilst the distraught parents stand in the background. None of the laboratory tests used so much in clinical medicine today were available, but a more highly developed clinical sense and experience seemed to be acquired by the physician of those days, to compensate for the lack of diagnostic facilities which modern science has produced. Indeed, it is said that the best clinical consultants the world has ever seen existed at the beginning of this century.

The provision of the facilities mentioned and of adequate specialist services, where required, naturally increases the cost of modern medicine. Physicians and surgeons, pathologists, radiologists, biochemists and their trained technicians are all skilled professional personnel and require adequate remuneration, either on a fee for service basis, or as full-time employees of the State. The result of all this is that the cost of a serious or prolonged illness, particularly if treatment in hospital is required, is high, even when allowance is made for moderate fees, whether paid by the State or by the individual.

It is to try to relieve this financial burden of sudden and severe illness in the family, which can be severely crippling, that some form of free or assisted health service is being tested in countries throughout the Commonwealth. As a profession, we are heartily in agreement in principle; it is the method of implementation that causes differences in opinion.

Today the steady increase in the older or pensioner group of the population, in whom illnesses are more common, causes more calls on the medical profession, and although they are provided for under the Pensioner Medical Service, there is disagreement between the Government, who consider the cost already too high, and the doctors who do not consider the remuneration adequate.

The total number of old age pensions granted in Australia has increased from 232,836 in 1939 to 425,556 in 1955. Of these latter pensioners, 147,750 were males and 227,806 females—showing the greater longevity generally and particularly of the female of the species. At the same time, these figures show the increasing number of pensioners in the population, an increase of nearly 100% in six years.

During the same period there was a slight decrease in the number of invalid pensioners—from 88,812 in 1939 to 78,498 in 1955. In this year, the total of all pensioners amounted to 504,054, or about 4·8% of the population, and the cost to the Government was £87,614,112. In 1957, the number of pensioners and dependants participating in the Pensioner Medical Service was 683,848 or about 7·19% of the population, and their medical care alone cost the Government £3,000,279.

This question of the cost of health services today has been summarized by Byrne as follows: "An increasing population needs an increasing amount of increasingly costly medical care." He points out that under modern conditions "old age is more comfortable, not so vulnerable to acute infection and lasts longer". Each oldster, by living longer, survives more illnesses and thereby needs more medical care.

The lower income group today have at their service the Australian public hospitals, where the best medical and scientific treatment and investigation are available free, or at little cost to the individual. However, with the expanding population and the increasing tendency today to hospital rather than domiciliary treatment of disease, there is always a bed shortage, and it makes depressing reading to note that some of our famous public teaching hospitals are chronically "in the red", or working on a large bank overdraft. As the population increases, so does the requirement for more hospital beds.

Public hospitals are today rapidly becoming the central focus of all health schemes. The chief reason, of course, is that they as institutions give a comprehensive medical service, with all ancillary services for investigation and diagnosis included, and it is important that their out-patient and in-patient accommodation should not be taxed by frivolous cases. Their construction and maintenance today have become very costly, and this notwithstanding the fact that in nearly all States specialist service is freely rendered by an honorary medical staff. The wages of the salaried nursing and domestic staff, of course, have risen steadily with cost of living adjustments, and so has the cost of food, drugs and scientific equipment.

To build a bed in a small country hospital can cost only about £400, but to build a bed in a city hospital, with the cost of land and all ancillary departments, can cost from £5000 upwards.

In discussing new hospital construction, the relation of costs to beds can give a false impression, unless the type

of hospital concerned and the facilities it offers are considered. Thus, in London, a new surgical block of 378 beds is to be built at Guy's Hospital, with an estimated cost of £E2,250,000. This block will, however, consist of a deep X-ray therapy department, sterilizing plant for the whole hospital, casualty departments, operating theatres and laboratory and teaching accommodation. In comparison, the estimated cost of the new Royal Children's Hospital in Melbourne of 400 beds, complete with nurses' home, residents' quarters and out-patient and special departments, will be £5,000,000. In this case the new hospital will draw its steam from the Royal Melbourne Hospital, which will also provide laundry facilities. To consider outer suburban and country hospitals in Victoria, Box Hill Hospital as a complete unit with 230 beds cost £1,200,000 and Traralgon Hospital in Gippsland with 200 beds cost the same. Thus major hospital construction is now largely a matter for State funds, and is passing beyond private subscription and endowment.

As far as hospital maintenance is concerned in this State, the in-patient cost per daily occupied bed in a public hospital is £4. 18s. 11d., or approximately £33. 11s. 5d. per week. In Victoria it is £4. 16s. 10d. per day. In London in one of the larger teaching hospitals the weekly cost of maintaining an in-patient is £E30. 19s. 9d. In other hospitals the cost is £E27. 3s. 8d. Here, one out-patient visit costs about 11s. 4d., whilst in England it is estimated that five out-patient attendances equal one in-patient day—that is, about 15s.

TABLE III.

*Hospital Beds in the Commonwealth, Public and Private.*

| State. | General (Not Including Chronic Diseases and Aged). | Infectious (Including Tuberculosis.) | Maternity. | Total. |
|---|---|---|---|---|
| New South Wales | 18,390 | 527 | 3042 | 21,959 |
| Victoria .. .. | 11,107 | 1195 | 2556 | 14,858 |
| Queensland .. | 7549 | 820 | 1643 | 10,012 |
| South Australia .. | 4745 | 458 | 1034 | 6237 |
| Western Australia | 3794 | 288 | 813 | 4895 |
| Tasmania .. .. | 1994 | 198 | 454 | 2646 |
| Australian Capital Territory .. | 168 | 40 | 45 | 253 |
| Northern Territory | 368 | — | — | 368 |
| Total .. .. | 48,115 | 3526 | 9587 | 61,228 |

In the figures for 1953-1954 there were altogether 699 public hospitals in the Commonwealth totalling 50,812 beds, under the care of 5299 visiting honorary medical officers, manned by 2188 salaried medical officers and 26,116 nurses. A total of 961,288 in-patients was treated, whereas out-patients totalled 2,458,631 in the Commonwealth. The expenditure on maintenance was £53,884,574.

Now these figures relate only to public hospitals, and an appreciable number of patients wish to be treated in hospital in private or intermediate beds. For example, in the southern part of this State alone, approximately one-third of all hospital admissions are to private hospitals. Throughout Australia a considerable proportion of patients, when admitted to hospital, prefer to be attended by their own doctor, in a private hospital, or in special wards in or attached to public hospitals if these are available. Latterly this proportion has increased through hospital and medical benefits insurance which, although inadequate in its benefits and incomplete in its coverage of illness, does meet a proportion of the cost of such treatment. However, the growing shortage of private beds of all types is a serious worry to the city general practitioner, who has not professional access to his patients in a public hospital.

The cheap way of meeting the wants of an increasing proportion of the community, and also of providing revenue for the hospital, is the provision of private blocks or annexes attached to the large public hospitals so that no duplication of expensive plant and ancillary services occurs; but this is subject to political views, and that section of the community which pays most in taxation has in effect to pay twofold for the medical care it desires.

It is obvious that with the ever-increasing cost of hospital construction, and the present cost of maintenance, fewer and fewer private hospitals can be built, and with present taxation and probate duty fewer and fewer will be endowed, so that in the future major hospitals will all be State constructed and maintained.

He who pays the piper calls the tune. Will the general practitioner be allowed to treat and have clinical care of his patient in a State hospital? It is agreed, of course, that in a teaching hospital, or in one where post-graduate teaching is carried out with an appointed staff of specialists, this is impracticable; but in an ordinary hospital of the future, will the family doctor be able to attend and treat his patient throughout an illness in a State-controlled hospital, or will a patient when admitted to hospital pass from his personal care to that of a full-time staff?

This is a situation which may eventually be faced by the medical profession, for if general practice in this country is to remain one of freedom of contact between the family doctor and his patient, suitable practitioner hospital facilities must be available, and these are rapidly becoming limited.

The general picture of hospital beds available in the Commonwealth today, both public and private, is shown by Table III which is reasonably accurate and up to date, but does not include repatriation hospitals and hospitals for infectious diseases other than tuberculosis.

## Conclusion

The object of this address has been to present a picture of the health of the people of Australia, particularly from the aspect of medical practice.

Life has been prolonged through advances in medical science and the modern treatment of disease; but morbidity as seen in every-day illnesses which the general practitioner has to treat has not diminished, but has rather increased. The stress of modern life and nervous tension appear to influence today's morbidity.

The important fact that must be accepted is that during the last 30 years medicine has progressed more than it did in the preceding century, and that it is now tending to become an exact science rather than a healing art.

Modern medicine is costly, not because of individual fees, which bear a direct relationship to the cost of living, so much as because of the multiplicity of estimations and tests required for the proper conduct of a complicated illness, which are expected from the point of view of thoroughness by the public today, and are often the subject of litigation when neglected.

Is any member of the community at present, whatever his income, debarred because of expense from any measure which will help to cure him? No; because our public hospitals cover all those in the low income group, and health insurance is available to all.

Is the cost of medical care today excessive, or disproportionately too much of a financial strain on the wage earner? Opinions will naturally be based upon the success or otherwise of the treatment given; but there is undoubtedly today a general feeling that State assistance is indicated in some measure.

A number of people will advocate a completely free national health scheme—for example, as in Great Britain today. It is worth while remembering that the total cost of this in the financial year ended March 31, 1956, was £535,000,000, and that this was £40,000,000 more than the previous year. The total sum is still increasing each year. Quite apart from this, the general practitioners working in the scheme are far from happy and contented in their work, and completely under the control of a bureaucratic machine.

Experience has shown that when services are free they are not appreciated, and exploitation of the doctor's time with frivolous consultations is a frequent occurrence. Time-consuming filling in of forms and certificates is inseparable

from any medical scheme, but appears to be much worse on a full-time basis.

To prevent exploitation, each individual should bear at least part of the cost of his illness, small enough not to cripple him financially, but enough to make him appreciate his responsibilities, prevent abuse of the system and contribute toward its total cost; if it is entirely free, the cost to the State becomes enormous. The individual contribution necessary is probably less than the patient spends on tobacco annually.

Medical and hospital insurance can cover this if it is made universal and compulsory, and if it accepts for treatment all human ailments, particularly pre-existing disease.

It is worthwhile reflecting that a small Scandinavian country, Norway (Evang, 1957), has adopted such a compulsory health insurance policy, after a slow and carefully planned evolution. It has, in fact, managed to combine "compulsory health insurance with maximum freedom for the doctor to pursue his own career in a system which brings out a maximum sense of responsibility in both physician and patient".

Obviously some such scheme covering all sections of the community, who would have to bear a part of their medical expenses but would not thereby be crippled financially by any catastrophic illness, which would also permit free practice by the medical profession, is the best scheme for promoting a high standard of health in the people, because medical advice will be sought early in illness without fear of expense.

It has always been the aim of the British Medical Association to uphold the complete freedom of the doctor in his practice. The most important assets of a doctor are the goodwill and esteem of the public, and these can be earned only by service—that is, hard work and sympathy. It is of questionable value to a patient if his life is saved or prolonged by skilful medicine or surgery, when he has to live under a financial strain to pay off his medical indebtedness. To avoid this, some comprehensive form of health insurance offers the basic solution to these problems; but cooperation by the medical profession is essential. If a fee for service system rises, so that corresponding health benefit becomes purely nominal, people will be disillusioned with a scheme which does not give them real financial relief when they are in medical trouble. We have a responsibility for guiding our patients through medical channels appropriate to their financial status as well as to their illness.

Despite its evolution into an accurate and itemized science, medicine will still remain a healing art, provided, as Newman concisely puts it, "the one thing which is essential is maintained, the old professional spirit which has underlaid the practice of Medicine in England and the Commonwealth, about which we never speak, and which we never overtly teach: the professional spirit of putting the interest of the patient above the claims of gain, of fame, of research, and of the State".

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N. J. Bonnin, J. E. Cawte, M. T. Cockburn, A. S. de B. Cocks, R. G. C. de Crespigny, W. A. Dibden, J. F. F. Drew, D. E. Dunn, R. M. Ford, S. B. Forgan, J. F. Frayne, R. Greenlees, C. Gurner, Dorothea S. Heitmann, R. A. Isenstein, C. C. Jungfer, S. Krantz, D. K. Kumnick, L. G. Male, L. R. Mallon, R. F. Matters, F. J. B. Miller, D. G. McKay, E. McLaughlin, L. O. S. Poidevin, J. Orde Poynton, P. J. Reilly, R. N. Reilly, C. O. F. Rieger, J. L. Stokes, A. Winifred Wall.

### VICTORIA.

Charlotte M. Anderson, J. H. Apted, B. A. Baker, P. L. Bazeley, M. S. Benson, H. S. Bernshaw, Evelyn L. Billings, J. J. Billings, R. V. Blaubaum, W. F. Bowen, N. E. H. Box, K. Brennan, L. C. Brittingham, C. J. Officer Brown, J. Grayton Brown, L. E. Buley, D. T. Burke, G. G. Burniston, Kate Campbell, C. N. L. Cantor, N. E. Carson, A. Murray Clarke, D. M. Clarke, R. R. Clark, Marie Cockbill, B. O. Colahan, W. H. J. Cole, J. H. Colebatch, H. C. Colville, W. F. Cooper, B. L. Cornish, D. F. Cossar, D. D. Coutts, T. P. Crankshaw, W. E. L. Crowther, junior, I. H. Cuming, E. A. Daley, G. V. Davies, Bessie Denney, C. H. Dickson, D. Donald, G. A. M. Donald, R. H. C. Donald, P. G. Dowling, A. E. Doyle, T. K. Durbridge, C. T. Edwards, M. Ewing, E. A. C. Farran, L. Feil, A. A. Ferris, Harriet E. Finney, Jan Finney, F. M. C. Forster, W. L. Forsyth, A. N. Fraser, R. P. Freeman, I. C. Galbraith, J. M. Gooch, P. Goodman, P. W. Graham, R. W. Greville, J. S. Guest, K. H. Hallam, Gladys I. Hallows, J. J. Hamilton, A. J. M. Hare, A. L. Hare, J. I. Hayward, C. H. Hembrow, H. G. Hiller, W. P. Holman, P. E. Hughes, J. H. Hurt, A. M. Hutson, R. S. Cooper, W. D. Jackson, W. J. Jamieson, J. G. Johnson, P. G. Jones, A. Joyce, A. R. Kelly, M. Kelly, R. Kelly, Norma Kelso, Winifred E. Kennan, F. J. Kenny, B. T. Keon-Cohen, E. S. J. King, T. King, W. E. King, E. Kirsner, R. W. Klein, L. Koadlow, J. A. Keipert, R. A. Langley, R. S. Lawson, W. W. Lempriere, B. Lewis, Zara Lewis, J. Lindell, L. Lockwood, W. J. Long, C. J. Louis, H. A. Luke, Nancy Lewis, C. F. MacDonald, W. B. Macdonald, I. R. Mackay, J. P. Madigan, J. P. Major, M. Martin, R. F. May, A. Meares, R. A. Melick, Winifred B. Meredith, H. E. Moran, J. P. Morris, J. McC. Morrison, Anne T. A. Myers, N. A. A. Myers, D. N. McCulloch, D. M. McLean, J. B. McMiken, A. P. McPhate, G. Newman-Morris, M. M. O'Brien, J. J. M. O'Neil, J. P. O'Neill, R. H. Orton, B. N. Ostberg, R. G. Penington, J. S. Peters, M. C. Piercy, V. D. Plueckhahn, J. A. Poutsma, M. L. Powell, W. L. Rait, B. K. Rank, W. D. Refshauge, S. F. Reid, A. Richardson, W. S. Rickards, E. Graeme Robertson, D. B. Rosenthal, W. Rosenthal, N. J. H. Rothfield, T. P. Rowan, I. L. Rowe, K. F. Russell, G. P. Ryan, P. Schatzki, B. R. Schloeffel, Elsie Shinberg, G. Simpson, R. Southby, W. Emmet Spring, N. H. Stacey, I. O. Stahle, H. L. Stokes, W. E. Swaney, J. L. Swann, G. Swinburne, G. R. A. Syme, R. F. A. Strang, E. H. Taft, L. I. Taft, S. L. Townsend, G. F. Trinca, Margaret H. Troup, Elizabeth K. Turner, H. A. A. Van den Brenk, M. L. Verso, F. K. Wallace, T. V. Walpole, L. T. Wedlick, S. O. M. Were, J. G. Glyn White, J. McB. White, P. J. White, B. Widmer, R. D. Wilson, S. W. Williams, C. W. Wilson, R. D. Wilson, Patricia Wilson, R. G. Worcester, D. Zacharin.

### WESTERN AUSTRALIA.

C. W. Anderson, A. Barr, L. G. B. Cumpston, M. G. F. Donnan, Rosalie J. Gollan, L. P. Gray, G. A. Kelsall, Gordon King, W. Lawson-Smith, F. T. B. Lovegrove, A. A. Merritt, D. M. McWhae, R. Nattrass, W. R. Pitney, R. R. Rogers, J. L. Taylor, R. S. W. Thomas, G. R. Troup, K. G. P. Worner.

### NEW ZEALAND.

J. Dilworth Matthews, W. G. Rich.

### TASMANIA.

N. B. G. Abbott, N. D. Abbott, Geraldine Archer, R. E. Ashbarry, Ida L. Birchall, H. S. Blackburn, Marcia C. Blackburn, J. A. Bloomfield, W. E. B. Boscence, P. Braithwaite, E. Brettingham-Moore, D. L. Brick, E. J. I. Brick, M. G. Ciezar, D. P. Churton, C. Clarke, P. S. Clarke, J. F. Clemente, G. M. W. Clemons, R. J. Connolly, A. C. D. Corney, J. F. Correy, C. Craig, W. E. L. H. Crowther, D. K. Dargaville, Valerie A. Davenport, Ethel E. Davis, Molly Devenish-Meares, A. J. M. Dobson, P. Dorney, J. M. Drew, C. Duncan, C. Duncombe, C. M. Eadie, J. Edis, H. J. C. Engisch, J. R. Eley, F. R. Fay, F. W. Fay, P. W. Fay, J. B. Felstead, D. M. L. Finlay, H. M. Fisher, M. W. Fletcher, J. R. V. Foxton, K. J. Friend, W. B. Firth, T. R. Gaha, H. B. Gatenby, T. Giblin, Heather B. Gibson, P. F. Gill, R. A. Godfrey-Smith, L. N. Gollan, K. S. Goulston, A. J. Gray, A. Ormond Green, J. L. Grove, Jean M. Gunson, T. Godlee, J. B. Hamilton, Mona E. Hatherley, W. H. Hill, B. Hiller, T. G. Hogg, Dulcie E. Holden, H. Holden, A. B. Holmes, T. W. Horne, H. B. C. Houston, R. J. Hudson, J. McL. Hunn, L. M. Jacks, H. V. Jackson, T. C. James, D. J. A. Jarvis, L. A. Jones, K. M. Kelly, T. S. Kirkland, L. W. Knight, O. T. Kyle, O. Kudelka, W. B. Law, R. A. Lewis, C. B. MacDonald, I. T. MacGowan, J. R. MacIntyre, Violet MacIntyre, A. McS. McArthur, R. D. McIntosh, E. D. McIntyre, W K. McIntyre, J. Magner, Ailsa M. Marshall, A. McL. Millar, J. P. Millar, K. S. Millingen, W. R. Moloney, J. C. H. Morris, D. W. Moynagh, J. B. G. Muir, H. M. L. Murray, H. P. Morris, D. B. Nathan, N. M. Newman, Margaret F. Nicholson, P. Nolan, A. H. M. Oakes, Jean Oakes, Audrey H. Officer, J. C. S. Officer, C. R. Palfreyman, D. W. L. Parker, R. S. Parsons, G. H. Perry, F. Phillips, P. Pitney, P. Pitt, G. J. Ramsay, J. S. Reid, G. A. Robbie, R. R. Robertson, E. A. Rogers, J. S. Rogers, C. H. Rowe, D. J. Rae, S. W. Scargill, J. H. Sherrey, I. A. Shumack, Marie J. Shumack, A. L. Stephenson, F. R. T. Stevens, E. Suerth, J. H. Taylor, H. Roberts Thomson, P. Macdonald Tow, T. Thomson, Christine M. Walch, J. H. B. Walch, R. Walkingshaw, R. Wall, A. G. Wallace, D. J. Walters, D. H. Waterworth, Sir Ralph Whishaw, H. Will, Isabel C. Williams, Jean W. Wilson, L. H. Wilson, W. W. Wilson, W. W. Woodward, A. W. O. Young, Mary Young, W. V. Younger.

# Religious Services.

On Sunday, March 2, 1958, members of Congress wearing academic dress attended Morning Prayer at St. David's Cathedral, Hobart. The service was conducted by the Dean of Hobart. The first lesson was read by Dr. H. C. Colville, President of the Federal Council of the British Medical Association in Australia, and the second lesson by Mr. J. B. G. Muir, President of the Congress. The sermon was preached by the Right Reverend G. F. Cranswick, Bishop of Tasmania. Dr. Cranswick said that people mattered supremely to the parson and the physician, and the reason was the same for both, because people mattered to God. It was the essence of Christian teaching that man, God's highest creation, was a composite being. Health or wholeness was possible only when body, mind and soul were in harmonious relationship. From the earliest times there had been a close association between healing and religion. The fact that the intuitive linking of the two was seen, not only at the primitive level, but in developed civilizations, suggested a fundamental necessity of man's nature for a wholeness of approach. More than 2000 years earlier Plato had observed in words which had a modern ring: "This is the great error of our day in the treatment of the human body, that physicians separate the soul from the body." Dr. Cranswick went on to say that it could not be denied that there had been separation and even antagonism between the medical profession and the Church. For that the Church and the medical profession must each take its share of blame. Professor C. C. Jung had declared: "It is indeed high time for the clergyman and the psychotherapist to join forces to meet this great spiritual task." A French surgeon, Ambroise Paré, had written up on the walls of his hospital: "I dressed the wound, God healed it." The Church had seen the need to enlarge its vision; sensitiveness to human suffering and conviction of the value and dignity of human personality—such insights had come to them from Galilee. Down the centuries the Church had lost and rediscovered its original mandate from its Founder to heal the sick; but she now saw that the way of health and healing was a process dependent upon both scientific and religious factors—that science provided them with the technique of healing, religion with the impuse and motive, the spiritual initiative and sense of purpose. Dr. Cranswick said that the presence of members of Congress at the service was an indication that at the beginning of their very important series of meetings they came to seek God's blessing. Bishop Barry, of Southwell, England, was right when he had said: "The real lesson of this present age is not that faith in a living God is obsolete, but rather that we have made too small a claim on the glory and the majesty of God."

At St. Mary's Cathedral members of Congress attended Mass in academic dress on the morning of Sunday, March 2, 1958. The celebrant was the Most Reverend G. Young, Archbishop of Hobart, who also preached the sermon. The servers were Dr. R. Connolly and Dr. P. Gill. The epistle was read by Dr. Peter Pitney and the gospel by Dr. T. Gaha.

A combined Presbyterian and Methodist Church service was held at Wesley Church, Hobart, on the morning of Sunday, March 2, 1958. The Reverend W. McLeod, B.A., who preached the sermon, took as his text Ecclesiasticus XXXVIII, 15: "He that sinneth before His maker let him fall into the hand of the physician." Mr. McLeod said that one of the most interesting trends in Protestant theology of the last 50 years had been its return to what was now called biblical theology. Many of the biblical concepts which had hitherto been thought to be primitive, and as such had been dismissed, were now seen to be the most satisfactory that there were. Foremost among them was the Hebrew doctrine of man, of which more would be said later. For many years thinkers had accepted without question the Greek doctrine of man as presented by Plato, for example. The motivating force in man, or his *élan vital*, was his soul, which was held captive within the confines of his body during his lifetime, and which at death was released and descended into Hades. Life was essentially a meaningless jumble, and for many the aim of life was to escape from it. Such a view of life could lead Homer in the *Iliad* to write: "Nothing then is more wretched anywhere than man of all that breathes and creeps upon this earth." Again, Theognis had written: "Best of all for all things upon earth is it not to be born . . . next best to traverse as soon as possible the gates of Hades." Mr. McLeod went on to say that it was true that many Christians, while accepting the basic idea that the soul was imprisoned in the body, had been able to reject the latter part of the unpalatable Greek doctrine. However, more often than not, in order to do that, even more primitive conceptions had been used to describe the existence after death of a "soul". When the Gnostics of the first century A.D. thought of Christ, it was altogether out of the question to consider Jesus and Christ as one and the same. Christ, they taught, came into the body of the man Jesus and left before His death. The body was so wicked and corrupt that it was inconceivable that God should associate himself with sinful flesh. How different was that from the doctrine of man as given in the Bible, especially in the teaching of St. Paul. The Bible refused to regard man as a "trichotomous" being—of being divisible into three parts, mind, soul and body. Such a division was completely foreign to Hebraic thought, and for it man was to be regarded as a complete and indivisible entity. Anything, therefore, which affected any "part" of man must have consequences for the rest of him. That was to say that if a man was sick in "body", then every other part of his being would be affected, too. In common usage it was found that that was borne out. Thus Martin Luther was able to point out that one never said "my finger has a pain", but rather "I have a pain in my finger". Perhaps the biblical doctrine of man could be summarily described by saying that it was that about which one could say "I".

Mr. McLeod then said that in considering his text, it might appear that suffering was a consequence of sin. If, however, they considered the text in the light of, first, the Old Testament (especially the Book of Job), and secondly of the New Testament they saw that suffering was definitely not always associated with sin. People might suffer without any antecedent sin (though perhaps less often than one might think); nevertheless the Bible was adamant that the two did not necessarily go together. If, however, man was not in harmony with God and with his environment, he was likely to be under abnormal stresses and tensions, which of course affected every part of his being. There, then, was a theology giving a biblical sanction and basis to the study of disorders of psychosomatic origin (and of "somatopsychic" origin, too, since the process affected the whole man). The effect of the all-pervading nature of tensions of all kinds was recognized many years earlier. An example of that was given by William James in his book published first in 1902. In a footnote to that book he had made the following statement: " . . . We do find evidence to convince us that the proper reform in mental attitude would relieve many a sufferer of ills that the ordinary physician cannot touch; would even delay the approach of death to many a victim beyond the power of absolute cure, and the faithful adherence to a truer philosophy of life will keep many a man well, and give the doctor time to devote to alleviating ills that are unprintable." Sir Heneage Ogilvie, in *The Lancet* of July 6, 1957, had made the following statement: "The instances where the first recognisable onset of cancer has followed almost immediately on some disaster, etc., . . . are so numerous that they suggest that some controlling force that has hitherto kept this outbreak of cell communism in check has been removed . . . "

Having said that the well-being of man was upset by tensions which could affect each part of him, and having suggested a return to the biblical doctrine of man, Mr. McLeod went on to examine the teachings of St. Paul on

that subject. St. Paul in speaking of man would not separate the soul ("psyche") from the body ("sarx"), as they had already seen. For Greek conceptions, particularly those of Plato and the Orphics, the soul when separated obtained its liberation. For Paul the separation meant extinction. The soul did not bear the higher life or survive death. When St. Paul wished to speak of the higher life of man he used, not "soul", but rather spirit ("pneuma"). That knowledge enabled them to see the Pauline conceptions of the soul, and of life after death, in their right perspective. Psyche was an unimportant and colourless term, and Paul built nothing on it. For him the Christian hope was grounded in the grace of God and in the new creation. Men were, he said, "made new men in Christ Jesus". That point of view explained why they could believe in the statement in the Apostles' Creed "I believe in the resurrection of the body"—the whole man was renewed by God. For Paul that meant that on God's initiative man, as an indivisible whole, was raised in some way to a new life. That doctrine of man, of the whole man, was that which gave to man his true dignity, as distinct from the body as prison of the soul. It was for the redemption of man as such that God chose to become, in some way, the God-man, in order that man might be restored to his full status, and to achieve the destiny which had been planned for him.

On Saturday, March 1, 1958, at 10 a.m., a service was held at the Synagogue in Argyle Street, Hobart. This was attended by Jewish members of Congress wearing academic dress. The service was conducted by Mr. Hasofa. The address was given by Dr. E. Fabian, who welcomed the visitors to Hobart and to the Synagogue. He pointed out that the Synagogue had quite a historic value, as it was the oldest existing synagogue in Australia. He said that the Jewish community in Hobart was small and without Rabbi or professional Reader; but exactly as a country medical practitioner did a good and essential work without the facilities of hospitals, so the small community kept the torch of Judaism burning and did their part for the survival of their religion. They had also been helped by Jews on the mainland, and for that they were grateful. The Jews of Hobart would gladly help the visitors in any way that they could.

On Monday, March 3, 1958, a meeting of the Christian Medical Fellowship of Australia was held at Bishopscourt, Hobart, by courtesy of the Bishop of Tasmania. Dr. J. Gavin Johnson (Victoria) was in the chair. The meeting took the form of a discussion on "Possibilities and Problems of Improved Cooperation between Doctors and Clergy". The principal speakers were Dr. Bruce Peterson (New South Wales) and the Reverend Godfrey Kircher, Precentor of St. Paul's Cathedral, Melbourne.

## Inaugural Meeting.

The inaugural meeting of the Tenth Session of the Australasian Medical Congress (British Medical Association) was held on the evening of Monday, March 3, 1958, at the City Hall, Hobart. The opening ceremony was performed by His Excellency the Right Honourable Sir Ronald Cross, Bart, K.C.M.G., K.C.V.O., Governor of Tasmania.

Mr. J. B. G. Muir, in his opening remarks, referred to the diffidence with which the Tasmanian Branch of the British Medical Association had received the Federal Council's invitation to hold the Tenth Session of Congress in Hobart. They had been then reminded of the success of the Fourth Session, which had been held in Hobart in 1934, and had gone ahead and done their best. The members of the various committees had worked extremely hard to ensure an interesting scientific and social programme. Mr. Muir expressed the Branch's thanks to the University of Tasmania for allowing the Congress to be held there, and to the Mayor and the City Council of Hobart for their help. The Government of Tasmania had done all in its power to assure the success of the Congress. Mr. Muir went on to say that Tasmania was a centre of Australian history. Those who had had to cross Bass Strait should remember that it was a medical man, George Bass, who in 1798 with Matthew Flinders had circumnavigated the island in search of an easy way for ships going to India and China so that they might avoid going into the "Roaring Forties". In the early days of Hobart there were warning notices, telling people not to cross the river in small boats because of the whales, the brutes that kept them awake at night with their roaring and snorting. Mr. Muir then said that they were privileged at the inaugural meeting to have with them the Governor, His Excellency Sir Ronald Cross, and Lady Cross, who during their stay in Tasmania had won the affection and respect of everyone. Sir Ronald Cross's term of office was to finish in 1958, and the Congress was indeed fortunate to have such a Patron. Mr. Muir then invited Sir Ronald Cross to open the Congress.

Sir Ronald Cross said that in all Australia there was no organization more highly regarded than the British Medical Association. More than that, Australia had long been known for its work in the fields of medicine and surgery, and in a world where respect was not always accorded to those whose merits justified it, it was indisputable that the profession of medicine in Australia met with universal respect. Sir Ronald Cross expressed pleasure that it had been decided to hold the Congress in Tasmania, and extended to all visitors a warm welcome from the friendly Tasmanian community. Only once before had the Congress been held in Tasmania, in 1934. Sir Ronald Cross said that in view of the fact that the Commonwealth of Australia consisted of two islands, a northern island and a southern island, he felt that there must be some very good reason why the sessions of Congress were not held alternately in one island and the other. Tasmania was an island of mountain, river, lake, vast beautiful coast lines, fertile regions, happy fields and succulent pastures. He was sure that many of the visitors should spend more time in Tasmania to spend it more richly, such a paradise it was on earth. Without suggesting that any of those present would not see another paradise, it was a little doubtful in view of the uncertainty that surrounded that question. He was far from suggesting that the time of Congress was not being very well spent. He had been vastly impressed by the list of 180 scientific papers which he had studied. He could not understand the titles of any of them. It was hard to find words to express the keen appreciation that laymen had of medical research, knowledge, experiment and practice, whereby they remained more active than they would otherwise be, and their lives were being lengthened in spite of their unhealthy habits. Laymen had trust in, and respect and affection for, the men who worked early and late at all sorts of unseasonable hours to bring succour to those in need. It was especially because of that trust, respect and affection that he could say, on behalf of the Tasmanian community, that they warmly welcomed the visitors, and hoped that they would enjoy the good things of the island and that their deliberations would attain the high standards and success that they had set for themselves. Sir Ronald Cross then declared open the Tenth Session of the Australasian Medical Congress.

Mr. J. B. G. Muir, the President, then delivered his President's address (see page 765).

The Right Honourable the Minister for Health of the Commonwealth of Australia, Dr. D. A. Cameron, in moving a vote of thanks to Mr. J. B. G. Muir for his address, expressed appreciation of the warm welcome to Hobart that the visitors had received, and said that they looked forward to the other things that Congress had for them. Dr. Cameron then spoke about the problems raised by advances in medicine abroad and in Australia, and briefly outlined some of the difficulties that confronted a government when it attempted to provide a health service for the people.

The President later held a reception at the Town Hall, where supper was served.

# Conferring of Degrees and Henry Simpson Newland Oration.

On the evening of Wednesday, March 5, 1958, in the City Hall, Hobart, honorary degrees were conferred on distinguished visitors to the Congress by the Council of the University of Tasmania. The degree of Doctor of Laws was conferred on the Right Honourable Robert Gordon Menzies, C.H., LL.M. (Melbourne), Honorary LL.D. (Belfast, Bristol, British Columbia, McGill, Melbourne, Sydney), Q.C., M.P., Prime Minister of the Commonwealth of Australia. The degree of Doctor of Science was conferred on Sir Charles Bickerton Blackburn, Kt., O.B.E., B.A. (Adelaide), M.D., Ch.M. (Sydney), Honorary D. Litt. (New England), Honorary LL.D. (Melbourne), Honorary D.Sc. (N.S.W. University of Technology), F.R.C.P., F.R.S.M., F.R.A.C.P., Honorary F.R.C.P.E., and on Sir Alexander Paterson Murphy, Kt., M.C., M.D., Ch.M. (Sydney), F.R.C.P., F.R.A.C.P. The ceremony was conducted by the Honourable H. S. Baker, D.S.O., Chancellor of the University of Tasmania, assisted by Professor R. W. Baker, Dean of the Faculty of Law, and Professor Hickman, Dean of the Faculty of Science.

At the conclusion of the ceremony, Dr. H. C. Colville, President of the Federal Council of the British Medical Association in Australia, presented to the University of Tasmania, on behalf of the Federal Council, a gavel, to commemorate the holding of the Tenth Session of Congress in Tasmania. The Chancellor received the gavel on behalf of the University of Tasmania.

The Henry Simpson Newland Prize in Surgery, which had been won by Neville Coleman Davis, M.B., B.S., F.R.C.S., was then presented by Dr. H. C. Colville to Dr. Evan Thomson, who received it on behalf of Dr. Davis, who was unable to be present at the Congress. Dr. Colville said that the subject set for the essay was "Factors Influencing the Prognosis in Intestinal Obstruction", and that the examiners regarded Dr. Neville Davis's work as a fine monograph.

The President of the Tenth Session of the Australasian Medical Congress (British Medical Association), Mr. J. B. G. Muir, then introduced the Right Honourable R. G. Menzies, Prime Minister of the Commonwealth of Australia, who delivered the Henry Simpson Newland Oration (see THE MEDICAL JOURNAL OF AUSTRALIA, April 19, 1958).

# Plenary Sessions.

## THYROID DISEASE.

A PLENARY SESSION was held on the subject of "Thyroid Disease". The chairman was J. B. G. MUIR (Tasmania).

### The Medical Aspects of Thyroid Disease.

W. E. KING (Victoria) read a paper entitled "The Medical Aspects of Thyroid Disease". He said that the great advances made in the diagnosis and treatment of thyroid disease had been largely due to the use of radioactive iodine, paper chromatography and zone electrophoresis. Dr. King briefly outlined the physiology of the thyroid gland, mentioning the formation, transport and utilization of thyroid hormone and making particular reference to thyroxin-binding protein. He said that radioactive iodine provided a logical tool for the diagnosis of thyrotoxicosis. The three tests in use at the Royal Melbourne Hospital were the two-hour uptake, the two-hour neck-thigh ratio and the forty-eight hour protein-bound radioactive iodine estimation. Those tests had given satisfactory results, and required only an oral dose without admission of the patient to hospital. Dr. King went on to say that despite the advent of $^{131}I$ in treatment, anti-thyroid drugs still had a place—for example, (i) in childhood and adolescence and in severe exophthalmos, and (ii) combined with $^{131}I$ in the treatment of toxæmia. Referring to Hashimoto's disease, Dr. King said that a positive response to flocculation tests and alterations in serum protein levels, especially gamma globulin, opened up a new concept. Finally Dr. King said that myxœdema, which was a common complaint in all its forms, generally responded satisfactorily to thyroid extract. Triiodothyronine was a more rapidly acting but more dangerous therapeutic substance.

### Thyroid Disease—Public Health Aspects.

F. W. A. CLEMENTS (New South Wales) read a paper entitled "Thyroid Disease—Public Health Aspects". He said that his paper would be limited to a discussion of endemic goitre. Referring first to the ætiology, Dr. Clements considered the evidence for the iodine deficiency theory, and said that it warranted the conclusion that a significant amount of endemic goitre was undoubtedly due to iodine deficiency. A considerable amount of evidence had been accumulated to show that much of the endemic goitre in Tasmania and southern Queensland was due to the action of food goitrogens present in milk from cows which grazed on certain fodder plants and cruciferous weeds. It had not been possible to prevent endemic goitre due to that cause by the prophylactic administration of comparatively large doses of iodine. That raised serious public health problems. Turning to the treatment of endemic goitre, Dr. Clements said that it was the experience of most practitioners that an enlargement of the thyroid could not be significantly reduced by treatment with iodine. Thyroid extract had been found effective in a high percentage of cases. Dr. Clements then referred to the sequelæ of endemic goitre. He said that the most frequent adverse sequelæ were nodular goitre with hypothyroidism and secondary thyrotoxicosis. The incidence of secondary thyrotoxicosis in Tasmania had in the past been eight times the incidence in Western Australia, where endemic goitre did not occur. The incidence of secondary thyrotoxicosis varied widely in the different areas where endemic goitre occurred. That raised the question whether endemic goitre from different causes had a different rate of occurrence of thyrotoxicosis as a sequel.

### The Treatment of Diseases of the Thyroid by Radiation.

W. P. HOLMAN (Victoria) read a paper entitled "The Treatment of Diseases of the Thyroid by Radiation", in which he discussed chiefly radioiodine therapy. He referred particularly to the views of the group working at the Royal Melbourne Hospital, which had changed somewhat over the six years since the Eighth Session of Congress held at Melbourne in 1952. Dr. Holman said that he proposed to describe some of the changes, since the views appeared now to be reasonably stable. The original very discriminating choice of patients had been modified; it was now believed that radioiodine therapy was the treatment of choice for patients with smooth toxic goitres, and that the only clear contraindications were the presence of pregnancy after the twelfth week, and lactation. Another significant change had been the adoption of a single dose as opposed to the original multiple fractional doses, because of the realization that mathematical precision could not be attained in the estimation of gland size, that distribution of the isotope within the gland was by no means uniform and that the level of radiosensitivity might vary widely—for example, according to the degree of toxicity. The Royal Melbourne Hospital group had passed fairly quickly

through the usual stages of diminishing complexity of physical calculations of dosage to its present simple empirical method. The standard dosage was now regarded as seven millicuries; if the goitre was large, one millicurie was added; if it was very large, two millicuries were added. If the goitre was small, and also often in post-operative recurrence, one millicurie was deducted. The measured retention of the radioisotope in the gland after 24 hours might sometimes influence the dosage. With regard to the treatment of toxic nodular goitres, Dr. Holman said that the view of the Royal Melbourne Hospital group was that the method of choice was surgical subtotal thyroidectomy, since the distribution of radioiodine in such glands was irregular, and undesirably large doses were required to produce an unpredictable effect. Other workers had had the opposite experience. Dr. Holman referred to radiation hazards, and to the possibility that carcinoma of the thyroid might be produced by that form of treatment after a long latent period; that had persuaded many to deny radiation treatment to patients aged under 40 years. In the 16 years since the treatment was first used in Boston, no such case had been reported. There had been two reports of leukæmia from the United Kingdom; but analysis suggested that the occurrence was due to chance. The genetic hazards of radiation had also to be considered. From a therapeutic dose of seven millicuries, the tissue on an average received four rads, which could be taken as whole-body irradiation; the reproductive organs received 10 rads, which was similar to that received from some diagnostic radiographic procedures; the kidneys received about 50 rads and the stomach and salivary glands about 140 rads. The thyroid received about 10,000 rads. Dr. Holman then referred to the treatment of carcinoma of the thyroid with radioiodine. He said that probably only one in 10 such tumours would be effectively avid for radioiodine. On the other hand, some 15 years earlier, the hope that such tumours might respond to treatment with radioiodine had greatly stimulated the spending of money on salaries for medical physicists and on the equipping of their laboratories. That happy issue might have been long delayed, had the work been merely part of the changing clinical management of hyperthyroid states. Dr. Holman finally quoted two cases of metastasizing carcinoma of the thyroid, and showed that X-ray therapy and hormone treatment were often needed in addition to radioiodine therapy.

### The Thyroid Gland.

G. R. A. SYME (Victoria) read a paper entitled "The Thyroid Gland", in which he discussed the six clinical types of thyroid disease and their surgical treatment. Dr. Syme said that single adenoma required treatment by adenoidectomy for prophylactic and diagnostic reasons. In colloid goitre, subtotal thyroidectomy was required only for cosmetic reasons, or if it was causing pressure. Nodular goitre was of two types, non-toxic and toxic. If non-toxic goitre occurred before the menopause, the patient should be kept under observation. If it occurred during or after the menopause, there was always the doubt that it might be toxic, and subtotal thyroidectomy should be performed. Toxic goitre was treated by subtotal thyroidectomy. In Graves's disease, toxicity should be overcome by medical means, and afterwards the patient should be reassessed in relation to the need for operation. In retrosternal goitre, the correct treatment was removal of the retrosternal mass and nodules. Malignant goitre required exploration and removal, according to the degree of spread.

### Discussion.

J. L. GROVE (Tasmania), in opening the discussion, said that few diseases differed so greatly from place to place as the various types of goitre. However, the differences were of degree rather than of quality. He proposed to confine his remarks primarily to nodular goitre. He said that in Tasmania they had learnt to live in comparative peace with their goitres. At least in northern Tasmania, no less than 50% of females over the age of puberty had nodular goitres, and very few ever required interference. Dealing particularly with toxic nodular goitre, Dr. Grove said that if nodular goitres became toxic, there was an alternative to surgery—radioactive iodine therapy. If that form of therapy was successful in smooth toxic goitre, and it was, then it should be so in the nodular types. In his opinion they should cease to regard smooth and nodular toxic goitres as entirely different diseases. They might differ in degree, but not in quality. He would like to see the term 'secondary thyrotoxicosis" abandoned, although Dr. King's remarks had suggested that that was not true. He had recently made an analysis of the first 150 cases of toxic nodular goitre treated with radioactive iodine. Two facets that obviously needed discussion were toxæmia and gland size. The series might be statistically small, but he thought that the trends were clear. Discussing first of all toxæmia, Dr. Grove said that 70% of their patients had been rendered euthyroid and 8% hypothyroid. He was doubtful about Dr. King's division of cases into myxœdema and hypothyroidism, although he suspected that Sydney colleagues would welcome that differentiation, which Dr. Grove thought very pessimistic. Dr. Grove said that in Tasmania they thought that most of the patients were only in a temporary hypothyroid phase. The dosage of thyroid extract in general was being reduced, and some patients had been able to stop taking it. In 10% of the cases the results had been so far unsatisfactory, but they were all "one-dose" cases, and it was thought that in most of them with further dosage a good result could be obtained. A missing 12% were cases in which the time interval had been too short for assessment, or in which doubts had arisen about the diagnosis. So far multiple dosage had been used in 14% of cases. That figure would diminish, as the early treatments were, correctly, as they thought, very conservative in dosage. Discussing then the size of the gland, Dr. Grove said that they certainly did not always cure the goitre as such. That was obvious; for instance, if cystic change was present, they would not expect the cysts to be altered. Fibrous tissue could not be expected to melt away. However, in all their cases there had been some reduction in gland size. It was important to realize that in 80% of their cases they had been faced with a large gland, the dimensions being six by five centimetres and five by three centimetres and more. Now, in 50% of the cases, the gland had become impalpable. In 25% the gland was now only just palpable. In other words, in certainly 50% and probably in up to 75% of cases they did as well as the surgeons as far as gland size was concerned. What if they did not remove the goitre? Surely that mattered little if the patient was rendered euthyroid. The gland in those cases simply reverted to the standard gland, of 50% of all northern Tasmanian females. Persistence of the goitre was important only if it was causing pressure symptoms, a state which they had not encountered. Cosmetic reasons could be argued, but those patients had ignored the cosmetic defects for years as a rule, and presented only because of the supervening toxæmia. Dr. Grove said that he thought those treating thyroid gland disturbances would agree with four clear indications for the treatment of true nodular goitre with radioactive iodine. There were four groups of patients who should be so treated: (i) patients who could not be prepared for safe surgery by conventional measures; (ii) patients who refused operation; (iii) patients whose condition was too dangerous for operation because of associated abnormalities; (iv) patients for whom operation was an economic problem. During radioactive iodine therapy, the patient could remain at work. In Tasmania patients were seldom admitted to hospital; they were admitted mostly for cardiac breakdown, or because their homes were very far distant. Those were indications upon which everyone would be likely to agree. Dr. Grove said that he considered that radioactive iodine therapy was the treatment of election in most cases. In Tasmania, the standard initial dose was now 10 millicuries. Ultimately they would decide on the contraindications, which would not necessarily include the presence of a large goitre of long standing. He had achieved a dramatic reduction in the size of a very large non-toxic goitre producing severe pressure symptoms when the patient had refused operation. That treatment had been suggested to him by Professor Astwood. Dr. Grove said that in the search for truth he thought that the correct set up was necessary. Their clinic was run jointly by a physician and a surgeon, and all cases were discussed and the treatment given was decided upon by

mutual consent. He had made a sweeping statement, he knew; however, they should all remember that Dr. Holman had satisfactorily disposed of the argument concerning radiation hazards, and had left only two clear contra-indications. Surgery was now certainly an essentially safe procedure; nevertheless, it still had a mortality. Furthermore, its morbidity was greater than was usually realized. In their most recent survey of 1000 cases of thyroidectomy—and the late Alan Pryde was widely recognized as a most skilled thyroid surgeon—there was a 2·5% incidence of some objectionable complications over and above the occasional unsightly wound and the recurrence of the goitre. Certainly many of those, though not all, were of a temporary nature, and at least until the incidence and effect of the theoretical radiation hazards had been shown to be a fact and to produce as high a morbidity and mortality as thyroidectomy, they must push on with radioactive iodine therapy, which he was sure had been shown to produce satisfactory results.

Dr. Grove then said that he wished to make a few general remarks on points brought out in the papers. (i) They did not use antithyroid drugs as a complete treatment. Occasionally, as had been found in Sydney, those drugs might provide a safe anchorage until the storm blew itself out. In Tasmania they thought that they were more or less like oil poured on troubled waters, making a prompt and radical rescue possible. (ii) They had not had Dr. King's success with those drugs in the treatment of young people; in fact, in the pre-isotope days they had been very grateful to the radiologists for one or two dramatic rescues after antithyroid drugs had failed completely. Dr. Grove could not help feeling that ultimately they would come to accept radioactive iodine for those patients. (iii) Dr. Syme had spoken of a persistent smooth non-toxic goitre; they did not know it. There had been no such case in their series of 1000 thyroidectomies. The single adenoma which Dr. Syme had mentioned was very rare in Tasmania. He had said that in young people that diagnosis was likely to be correct. That was certainly not so in Tasmania—it was seldom correct; almost invariably the adenoma was the only recognized lump in a nodular goitre. As far as carcinoma was concerned their figures for the last 20 years showed a helpful pattern from diagnostic point of view. The average duration of the goitre before malignant change was diagnosed was 11 years. In only one case did it seem likely that the presence of a single nodule was the state of affairs, and that patient was aged 64 years. Unfortunately there were no operative or autopsy findings to help them. (v) Dr. Grove said that he could perhaps correct a remark by Dr. Clements. They had used thyroid extract for treatment of endemic goitre since the inception of their clinic. They had the facilities and would be only too glad to cooperate in a study of children such as he had suggested. Dr. Grove said in conclusion that he had made out a case for radioactive iodine treatment of toxic nodular goitre. Perhaps the physicians were about to receive a crumb from the surgeons in exchange for the hearts they had taken from them.

W. W. WOODWARD (Tasmania) said that it took a long time to gather from proper and full surveys the true facts about a carcinogen. For instance, irradiation had been used for the treatment of ankylosing spondylitis for very many more years than $^{131}I$ had been used for thyroid disease, and yet it was within the last two years that a Medical Research Council follow up, carried out over a long period and in great detail by Court-Brown and Doll, showed that those patients who had had irradiation treatment of a goitre had an incidence of leukæmia 10 times that of the general population. At the Ninth Session of Congress in Sydney, Sir Stanford Cade, whose well known use of irradiation made his opinion of value, had given warning against the over-use of $^{131}I$. He said that cancer of the neck following X irradiation for thyrotoxicosis had taken many years to appear. Similarly, there had been several recent reports of cancer in the necks of adults following small doses of irradiation for thymic enlargement in infancy. The genetic effect was unknown. Dr. Woodward finally said that unless all the various other methods of treatment had been tried and had failed, $^{131}I$ should not be used at all.

D. E. DUNN (South Australia) said that Crile of Cleveland advocated treatment of all smooth toxic goitres with $^{131}I$, at any age above puberty. If the patients were made hypothyroid, thyroid could be given; if they were undertreated, a further drink of $^{131}I$ could be taken. If any of his patients developed a carcinoma as a result of treatment, he planned to call all treated patients in for prophylactic thyroidectomy.

W. J. PULLEN (New South Wales) said that it had been of interest to hear Dr. Grove state that in Tasmania he was unable to control primary thyrotoxicosis with antithyroid drugs. It was considered that thyrotoxicosis in the absence of a nodular gland was essentially a self-limiting disease, and if the patient could be protected from its consequences for a period up to 18 months, the hormonal balance would become reestablished. That had been supported by several papers by Sir Hugh Poate, who had reported cures of up to 70% of patients with primary thyrotoxicosis whose treatment had been continued for about 18 months. It was essential to realize that thyrotoxicosis was primarily a stress disease. Dr. Pullen was surprised that none of the previous speakers had stressed that fact. If the severe stresses continued, a relapse was likely, and it was as essential to treat that aspect as to give definite antithyroid treatment. Referring to the incidence of carcinoma in solitary nodules of the thyroid, Dr. Pullen said that the incidence at the Royal Prince Alfred Hospital, Sydney, was 2%. Four cases occurred every year in an average of 200 operations for solitary nodule. The incidence was higher in solitary nodules in men.

P. M. C. CORLETTE (New South Wales) said he thought it was too early yet to recommend $^{131}I$ as the main method of treatment in thyrotoxicosis. It had been shown that the gonadal dose was some 10 rads from the average dose of radioiodine, and he thought that was a not inconsiderable dose from the point of view of genetic effect. Moreover, in a localized geographical community with a high incidence of thyrotoxicosis, the possible genetic effect might well be worse. With regard to late carcinogenic effect, it was only 16 years since $^{131}I$ had first been used, and that was too short a time to exclude such an effect. Dr. Corlette said that he thought radioactive iodine treatment should be confined to the management of patients aged over 40 years and to other cases in which other methods of treatment had failed.

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## FLUIDS AND ELECTROLYTES IN HEALTH AND DISEASE.

A PLENARY SESSION was held on the subject of "Fluids and Electrolytes in Health and Disease". The chairman was R. H. ORTON (Victoria).

### Fluid and Electrolyte Metabolism in Childhood in Health and Disease.

W. B. MACDONALD (Victoria) read a paper entitled "Fluids and Electrolyte Metabolism in Childhood in Health and Disease". He said that normal infants and small children had a greater rate of water turnover than adults, because of their high metabolic rate, their relatively large surface area, their different distribution of water in fluid compartments and their immature renal concentrating power. In illnesses associated with water and electrolyte losses, those differences were accentuated. Water loss or deprivation in infants caused more rapid dehydration of the hypertonic type than that seen in adults; it was also more easily correctable. Electrolyte losses might cause a complicated clinical and biochemical picture, which required more skill in diagnosis and management. Dehydration might be of isotonic, hypotonic or hypertonic variety; the three types were not accurately distinguishable clinically.

### Not Too Much.

MAURICE EWING (Victoria) read a paper entitled "Not Too Much". He said that the body in health was able to conserve fluid, but there was at all times a minimum loss which was obligatory. There was a corresponding minimum

level of intake. The effectiveness of that fluid-balancing system might, however, be disturbed by a surgical operation. Moreover, the patient might incur large abnormal losses. Over those the clinician commonly had little control, although he could on occasions correct them by operation. Often, the doctor encouraged excessive fluid loss from the alimentary tract by continuing the gastric or intestinal suction long after the need for it had disappeared. For the intake side of the balance sheet he could assume complete responsibility. Whenever possible, fluid should be given by mouth. The intravenous route had to be used when none other was available, and always with some caution, for it was not without risk. It was important to bear in mind the clinical state of water intoxication following surgical operations. Its frequency was probably underestimated. It was to be looked for particularly when hypotonic fluid was given in the presence of a relative oliguria, especially if the patient was already in some degree depleted of sodium. One of the difficulties of fluid therapy after surgical operations was that there might be, at the outset of treatment, no very certain measure of the balance or imbalance of fluid and of the electrolytes. That was well exemplified in patients with intestinal obstruction. Dosage was determined from hour to hour, and was largely dependent on the patients' response to treatment. The surgical relief of the obstruction was the most effective measure in the restoration of the normal pattern of body fluid. Professor Ewing said, in conclusion, that the tendency was to err on the side of giving too much fluid and salt rather than too little.

### Discussion.

I. CUMING (Victoria) said that when he was asked to open the discussion on the two papers, he was given them to study. On reading through them, he felt that the main point raised for discussion was the approach to fluid and electrolyte therapy in health and disease. Dr. MacDonald had spoken of some of the problems in medical conditions, using infants and children as illustrations. At the same time he had indicated the place of fluid and electrolyte therapy in some conditions. He had given them a clear, concise and reasoned argument based all the way on proven facts. In Dr. Cuming's view he had given an unprejudiced and balanced view of the position. On the other hand, Professor Ewing had spoken from the point of view of a practising surgeon and, to Dr. Cuming, it appeared that his message was to the effect that fluid and electrolyte therapy was a trifle dangerous and should be resorted to only when absolutely necessary. He had approached Professor Ewing to ascertain whether that interpretation of his message was correct. He seemed to think it was; he said that he felt that, to promote discussion, it would be proper for Dr. Cuming to oppose his view. He asked him to do so with conviction. Dr. Cuming went on to say that Professor Ewing had said that in his view their errors in treatment were in the main more errors of commission than of omission, and were born very often of a most unwise and uncritical prescription based on a single examination of the can electrolytes. Dr. Cuming said that of course, though Professor Ewing might not realize it, it was a primary principle for anyone conversant with fluid therapy that one did not make such a prescription without first examining the patient and obtaining and assembling all available information. Included in that information might be estimations of plasma electrolytes. Those might influence the prescription quite considerably, but they must never be considered the sole deciding factor. Dr. Cuming thought that Dr. MacDonald had put them in their right perspective. They were sometimes unnecessary, but on occasions they could not be done without. Using the analogy of the can and its taps, Professor Ewing had told them that the human body had mechanisms which regulated the fluid content of its various compartments. In the healthy adult, those regulators were very efficient over a fairly wide range of abnormal stresses; but in disease (and he included surgery under that heading) that range was considerably reduced. In other words, one had to be more accurate with fluid therapy in sick people. With that Dr. Cuming heartily agreed; but he emphasized two things. First, there was a range of error with which the sick body could cope; but one must work within that range. Secondly, one could get outside that safe range on the side either of too little fluid or of too much. Both could be similarly disastrous. Errors of omission might pass unnoticed whereas errors of commission were obvious. The answer surely lay in keeping within the safe range. Professor Ewing had exhorted them to beware of intravenous therapy and to use—as he put it—"the gullet-tap" whenever possible. He stated that that was the "safe tap". No one who had seen much of that work would argue with the first statement. It was a fundamental guiding principle to use natural routes when possible. Dr. Cuming said that he must comment on that commonly disseminated erroneous idea that the "gullet-tap" was safe. In many conditions it was not safe. In fact, it was even the more dangerous because of that commonly accepted fallacy, which gave a false sense of security. The most obvious example in which that was so was in a case of anuria. There the "gullet-tap" would accept potassium without a murmur until the patient died of potassium intoxication. Another example, in a better known context, was that after an abdominal operation food and fluid given to the patient and accepted by the gullet might precipitate the gut into a state of paralytic ileus. Emphatically, in a number of circumstances the "gullet-tap" was neither dependable nor safe, and he thought it was high time that the perpetuation of that fallacious idea should cease. Certainly they should use the alimentary canal whenever possible in preference to the veins; but they must know sufficient about fluid and electrolyte therapy to be able to decide which was the safer and more dependable in a particular circumstance—the alimentary canal or the veins. To bolster up that conservative theme, Professor Ewing had picked on the intravenous drip method—"the trouble", as he called it. He had said: "It is too often wholly abhorrent to Nature." He was critical of phlebitis and intravenous wounds. Dr. Cuming said that he would respectfully point out that that "abhorrent thing" had literally saved large numbers of lives in the past and would continue to do so in the future. Professor Ewing's comments on phlebitis and intravenous wounds were a criticism of the surgeon in charge of the case, not one of the therapy.

With regard to acute intestinal obstruction when the patient presented in a state of shock, Professor Ewing had said that the cause of the shock was the fluid and electrolyte imbalance; and yet he had advised them that: "It may be unwise to spend too much time on the immediate replacement of their deficiencies. Operation is a matter of urgency, and the relief of the obstruction is as significant in the correction of fluid loss as the ligature of the bleeding point in the management of urgent hæmorrhage." Dr. Cuming said that in presenting that picture, he felt that Professor Ewing had dealt a little carelessly with the true state of affairs. In urgent hæmorrhage the immediate brunt of the fluid loss was on the vascular compartment, so that shock occurred early and was obvious; whereas in intestinal obstruction the burden of the fluid loss was borne mainly by the whole extracellular compartment. Shock was a comparatively late manifestation. Its onset was insidious and its effects were dangerous. It took longer to correct, because one was dealing with two or even three compartments instead of one. To put a patient with an acute intestinal obstruction, in shock, on the operating table without first bringing his fluid deficiency into a safe range could be highly lethal. Then, after that plea for conservatism, Professor Ewing had brought up the question of post-operative obstruction or duodenal fistula, in which, as he said: "One encounters the really formidable problems—for a leak at this stage may be from a can in which the fluid level may already have fallen to a low level." Dr. Cuming said that he would like to suggest that had those patients been receiving adequate and competent post-operative fluid therapy, then one would not have started behind scratch, and the problem would not have been so frightening.

Dr. Cuming said that he thought Professor Ewing had put up his conservative thesis with his tongue in his

cheek. It was quite irrational to preach a conesrvative theme and then bemoan the fact that that approach had led him into "really formidable problems". In his closing sentence he had said: "Take care not to give too little, make sure you don't give too much." Dr. Cuming thought he would have been more proper had he said: "Make sure you don't give too little, take care you don't give too much." Dr. Cuming said that, because if one made sure that one did not give too little, it implied that one was at least aware of the problem and the principles of treatment. One was then in a position to take care. He believed they must take notice of Dr. MacDonald's paper with its reasoned and sane approach. Fluid and electrolyte therapy was a valuable tool. Like all other valuable tools, it should be used, but it should not be abused, just as the surgeon's knife should be used but not abused. But one must know when and how to use it. Errors of omission were just as dangerous as, but often less conspicuous than, errors of commission. When Professor Ewing respectfully reminded them of how 20 years ago they had conducted operations without the use of intravenous therapy and some of their patients miraculously survived, Dr. Cuming did not really think he was seriously suggesting that they should go back from the present age of knowledge and reason to the age of miracles.

FELIX ARDEN (Queensland) suggested that there was a third tap into Professor Ewing's figurative tank—namely, the administration of fluid by the subcutaneous drip method assisted by hyaluronidase. Fluid so given was free from the uncertainty of the oral route, and also free from the dangers of the intravenous route. It could be given easily, in measured amounts, with minimum trouble, and the rate of its absorption could be estimated with reasonable accuracy. There was a wide field of usefulness for subcutaneous drip therapy with small children.

G. M. CLEMONS (Tasmania) said that two pints of fluid could be given *per rectum* with great safety.

B. C. SINCLAIR-SMITH (New South Wales) said that fluid requirements were best measured in terms of body weight; but he wondered how one was to manage to estimate the body weight in the immediate post-operative period. There was also the question of staphylococcal infections arising during the course of intravenous therapy. He thought that they constituted a real danger, making caution necessary.

S. V. MARSHALL (New South Wales) said that as an anæsthetist he found that some surgeons wanted two weeks' intravenous therapy after operations. Others would not have it at all, and seemed to get away with fluid given by the oral route. He had been surprised to hear reference to cut-down tchniques; they were surely obsolete.

J. MORRISON (Victoria) said that it should not be the surgeon who demanded intravenous therapy, but rather the patient, and the degree of his abnormal state should decide. If it was reasonably normal, the post-operative treatment simply need be to maintain the *status quo*, and intravenous therapy was hardly necessary. He himself was wary of hyaluronidase, as fluid appeared sometimes to get "lost" in the subcutaneous tissue for considerable periods. He was not certain whether electrolyte estimations were always valuable, and he did not even know whether what was called the normal electrolyte pattern was necessarily the best in certain disease states.

ELIZABETH TURNER (Victoria) asked whether there was ever any occasion for giving hypertonic (for example, 3%) solutions intravenously. She thought that in certain cerebral states in children they might be of value.

JEAN GUNSON (Tasmania) said that no discussion would be complete without reference to diabetic coma. There electrolyte estimations and intravenous therapy had a special place on their own.

T. H. O'DONNELL (New South Wales) said that he supported Professor Ewing. He thought that intravenous therapy was over-used. He himself had recently performed a gastrectomy without the use of intravenous drip therapy; he had relied solely upon the rectal administration of water and feeding by mouth. In that he was trying to restore a sane outlook and not make intravenous therapy the routine after all operations.

Dr. Macdonald, in reply, said that subcutaneous drip therapy certainly had a place, especially when the demand was for maintenance of a child's osmolarity rather than the immediate replacement of fluid. However, it should not be used if there was any suggestion of circulatory failure or extreme dehydration. There fluid must be given intravenously. He thought that rectal infusion had very little place in early childhood and in infancy. There was also the danger that in conditions such as Hirschsprung's disease excess water might be retained, the result being water intoxication and convulsions. Alterations in body weight provided an excellent way of estimating fluid loss, provided that one had a preliminary record of the weight before the disease began. Staphylococcal infections were a hazard, but they would not influence his decision to give an intravenous infusion if the indications were otherwise there. To Dr. Marshall, Dr. Macdonald said that pædiatricians were now trying to an extreme degree to use the sharp needle technique in small veins even in the smallest infants. Sometimes the veins were too small for the purpose, and he himself would have no hesitation in cutting down upon a vein if the baby was very ill. In reply to Dr. Turner, Dr. Macdonald said that there were a few occasions on which hypertonic saline infusions were necessary. One was when water intoxication was suspected during the course of an intravenous infusion. He thought that most convulsions occurring under such conditions were due to water intoxication, and in that case the giving of hypertonic saline might be life-saving. It was similarly valuable in the treatment of water intoxication arising during the reduction of an intussusception. However, the special indication was anuria. Dr. Macdonald quoted one of his own cases, in which the child's life was lost because they did not take into account the excess of water that was being retained in the body from the water of oxidation in the fatty tissues.

Professor Ewing in reply, said that he considered himself fortunate not to have been handled more roughly by his colleague Dr. Cuming. He admitted that he had purposely overstated his case in order to be provocative. However, he did disagree with Dr. Cuming as to the range within which intravenous therapy might be regarded as salutary or hazardous. It had been the practice when he was a resident medical officer in hospital for all female patients to receive submammary saline infusions after operation, and they seemed to prove very satisfactory. He himself did not use the rectal route. In reply to Dr. Marshall, Professor Ewing said that he did see cut-down wounds, and they were sometimes infected; but even at the time when he himself arrived in Melbourne, he noticed that the autoclave had already come.

## HEART FAILURE.

A PLENARY SESSSION was held on the subject of "Heart Failure". The chairman was SIR RALPH WHISHAW (Tasmania).

### Physiological Mechanisms in Heart Failure.

B. C. SINCLAIR-SMITH (New South Wales) read a paper entitled "Physiological Mechanisms in Heart Failure". He said that the human heart failed because of a loss of myocardial contractility. That this loss of contractility followed either (i) defective coronary blood supply, or (ii) fatigue of the acto-myosin-ATP energy system following long-sustained and unphysiological loads. Unphysiological loads were either volume or pressure loads. The left ventricle failed more rapidly under volume loads, the right under pressure loads. High-output cardiac failure was mainly left ventricular failure under volume loads. Low-output cardiac failure was characterized by: (i) low effective stroke volume, but with high total right ventricular stroke volumes; (ii) increasing tricuspid incompetence; (iii) marked salt and water retention. Pulmonary heart failure was of either the anoxic or the pulmonary hypertensive variety.

### The Management of Heart Failure.

J. H. HALLIDAY (New South Wales) discussed the management of heart failure. He referred first to the need to make a firm diagnosis, and drew attention to the value of study of the jugular venous pulse in aiding the making of a decision at the bedside. He then said that, when it was decided that the heart was in failure, two further questions had to be answered: (i) the exact nature of the underlying cardiac disease; (ii) the reason for the development of heart failure. The answers were not always easy to obtain. Precipitating factors, present in about 50% of cases of heart failure, might be intrinsic or extrinsic. Intrinsic factors might be the onset of an arrhythmia with rapid ventricular rate, acute rheumatic or other myocarditis, and myocardial infarction, perhaps without significant chest pain. Extrinsic factors were excessive physical exertion and emotion, systemic infections, pulmonary infarction, thyrotoxicosis, severe anæmia, thiamin deficiency, surgery, anæsthesia and blood loss. Correction or control of those factors might cause the failure to disappear or to respond more favourably to other measures. Dr. Halliday emphasized the role of repeated pulmonary infarctions in severe or chronic failure with low cardiac output; appropriate anticoagulant therapy might greatly aid the patient's recovery. Occasionally surgical measures might be brilliantly successful in cardiac failure. Dr. Halliday went on to say that the importance of the three main factors usually responsible for heart failure (myocardial weakness, diminished renal blood flow and pituitary-adrenocortical imbalance) varied with the stage of failure. Myocardial weakness was of primary importance, and determined the degree of the other two factors. There were four stages of heart failure of progressive severity. (i) In the early mild phase, myocardial weakness alone was responsible for the clinical features. Treatment was by reduction of the work load on the heart by rest, weight reduction if necessary, and the administration of digitalis. (ii) In the second stage, those measures were inadequate, and diminished renal blood flow produced sodium and water retention. Restriction of sodium intake was now also required. (iii) Further deterioration caused greater diminution of renal blood flow. Properly administered diuretics were now required; the mercurial compounds given parenterally were the best. (iv) The final or irreversible stage was reached, when the failure proved refractory to all forms of treatment, and the disease progressed to a fatal termination. All those stages merged into each other, and any sudden deterioration of the patient's condition demanded a complete review of the over-all clinical picture, especially with regard to the precipitating causes of failure enumerated earlier, and a meticulous scrutiny of every detail of treatment. When treatment was not carefully and constantly watched, it might actually be responsible for the downward march of a patient from the third to the fourth stage of heart failure. Dr. Halliday then discussed in detail the role of treatment by digitalis, by salt and fluid restriction and by diuretics, pointing out a number of the pitfalls. In conclusion, he said that he hoped his limited presentation of some of the problems of treatment would show that, while there had been considerable improvement in recent years in the help available to patients with failing hearts, greater care was now required, not only to ensure the best results from treatment, but also to avoid adding to the load of the already distressed pump.

### The Role of the Surgeon in Heart Failure.

I. MONK (New South Wales) read a paper entitled "The Role of the Surgeon in Heart Failure". He said that the cause of heart failure must now always be ascertained, because the patient might have a surgically remediable lesion. However, in a patient with such a cardiac lesion, the onset of the classical symptoms and signs might mean that it was too late for operation. More attention should be given to early clinical manifestations of cardiac stress, because safe and very refined physiological methods of assessment were now available, so that patients could be sent for operation early. In certain circumstances, particularly in infancy, final assessment might have to be made at exploratory thoracotomy. Dr. Monk went on to say that heart failure might be relieved surgically by overcoming an obstruction such as mitral stenosis, by closing a fistulous communication such as a patent *ductus arteriosus*, or by performing an indirect operation, such as systemic pulmonary artery anastomosis for Fallot's tetralogy. When the cardiac by-pass became safe, the scope of heart surgery would be increased.

### Discussion.

C. J. OFFICER BROWN (Victoria), in opening the discussion, said that Dr. Monk had stated very clearly the mechanical factor in heart failure, and it was now well established that mechanical defects in the heart required surgical relief, or the majority of those affected would sooner or later die of heart failure or related conditions. Decortication of the heart for constrictive pericarditis had been introduced by Rehn and Sauerbruck in 1913, and that had been the only surgical method for the relief of heart failure until Gross first closed a patent *ductus arteriosus* in 1938. That event might be looked on as the beginning of heart surgery as it was known today. In 1944 Blalock started doing shunt operations for Fallot's tetralogy, and in 1945 coarctation of the aorta was successfully resected by both Crafoord and Gross. All those operations were extracardiac.

Dr. Officer Brown said that relief of a patent *ductus arteriosus*, now usually by division and suture, and resection of coarctation, were amongst the most perfect operations in surgery, and the onus was on the physician who withheld patients with those conditions from operation. As Dr. Monk had said, the two lesions might result in cardiac failure in early infancy, and should always be considered when an infant showed signs of cardiac stress. The femoral pulses of a new-born baby were readily palpable and, even at that age, coarctation should not be missed. The murmur of an infant ductus was often purely systolic, and diagnosis of that condition might try the most experienced cardiologist; cardiac catheterization might be necessary to be sure. Shunt operations for Fallot's tetralogy were only palliative, although they produced most dramatic relief in severely distressed patients. They were being replaced by a radical operation carried out with the patient on a pump oxygenator, but in a proportion of patients would remain the only possible method of relief. Brock's direct operation had never been widely accepted as an alternative to the shunt for Fallot's tetralogy and was not applicable for patients with pulmonary atresia or for some of the miserable little infants who needed early operation to keep them alive. Patients technically suitable for Brock's operation would in the future be suitable for radical cure.

Dr. Officer Brown went on to say that the second phase of development started in 1948, when blind intracardiac operations with a finger or an instrument passed into the heart were developed. Brock introduced valvotomy for pulmonary stenosis, and Bailey, Harken and Brock, independently, developed the operation for mitral stenosis. Blind intracardiac methods for aortic stenosis had been extensively used with less success than for pulmonary stenosis and mitral stenosis. Open-heart surgery under hypothermia was made practicable in 1953 by Lewis, who used it to close atrial septal defects, and by Swan, who introduced an open technique for pulmonary valvotomy. In 1954 Lillehei ushered in the era of temporary heart-lung replacement, when he used cross-circulation from a donor, and he followed that in 1955 with the development of a simple plastic pump oxygenator. In the same year Kirklin at the Mayo Clinic started to use a modified Gibbon heart-lung machine with considerable success. Although Gibbon and others had been experimenting with heart-lung machines for over 20 years, it was only within the last three years that any success had been achieved. In that short time many hundreds of ventricular septal defects had been successfully closed, and the radical cure of Fallot's tetralogy, although still hazardous, was firmly established. Time was still a factor, and, although 30 to 40 minutes on a pump oxygenator might be followed by success, there was no doubt that risk increased with prolongation of artificial circulation. For closure of an atrial septal defect, relief of pulmonary stenosis and open operation on aortic

stenosis, or closure of a pulmonary aortic fenestration, which required less than eight minutes, cardiac exclusion might be done with hypothermia or on a pump oxygenator, and one surgeon at least had reverted to using caval occlusion at normal temperatures for the relief of pulmonary stenosis, where less than two minutes' occlusion sufficed.

Dr. Officer Brown said that, as a consequence of the rapid development of open-heart surgery, technical achievement had far outstripped physiological understanding, and problems of heart block, cerebral vascular damage, electrolytic balance, blood coagulation and hæmorrhagic tendencies were still not completely solved. However, every day knowledge was increasing. Heart surgery had not yet reached its majority. Its infancy and teenage had been dramatic and stimulating, and the lusty stripling bade fair to become soon one of the giants of surgical achievement.

# Combined Meetings of Sections.

## SECTION OF ANÆSTHESIA, SECTION OF HISTORY OF MEDICINE, SECTION OF OBSTETRICS AND GYNÆCOLOGY AND SECTION OF PÆDIATRICS.

### Cæsarean Section.

A COMBINED MEETING of the Section of Anæsthesia, the Section of History of Medicine, the Section of Obstetrics and Gynæcology and the Section of Pædiatrics was held to discuss Cæsarean section.

L. G. B. CUMPSTON (Western Australia) read a paper entitled "Anæsthesia for Cæsarean Section—Some Problems and their Management". He said that Cæsarean section was a comparatively safe operation in the hands of a skilled obstetrician and a skilled anæsthetist, partly because of advances in anæsthetic technique. Referring first to the induction of anæsthesia, Dr. Cumpston said that it was essential to avoid anoxia, to which the fœtus was sensitive. He stressed the value of oxygen and of an indwelling needle, inserted into a vein, preferably on the dorsum of the hand, as a preliminary step; if it was not required for thiopentone, it would be available for muscle relaxants or ergometrine when needed. It had been shown by Crawford, using a single injection of 250 milligrammes, that the placenta was no barrier to thiopentone; the fœtal levels of the drug were higher for the shortest delivery times, and fell exponentially with the increase in the lapse of time before delivery. The maternal and fœtal levels at the time of delivery were approximately equal over a wide range of operation times (three to 30 minutes). Thus there was no need for surgical haste. If it was desired to avoid thiopentone, anæsthesia might be induced with a cyclopropane-oxygen mixture (50:50), and intubation might be carried out after the injection of succinylcholine chloride. That procedure provided good oxygenation, but there was some risk of laryngeal spasm. Further, cyclopropane traversed the placenta almost quantitatively, so that some fœtal depression might be expected. Turning to the question of intubation, Dr. Cumpston said that it was essential, and that succinylcholine chloride was the relaxant of choice for that procedure, preceded by thiopentone or cyclopropane. Gastric reflux and inhalation could be prevented by tilting of the table into the reverse Trendelenburg position. The acid aspiration syndrome might prove fatal; it was peculiar to obstetrics, and was responsible for 4% of maternal deaths. Dr. Cumpston then said that the anæsthetist who had a preference for cyclopropane should remember the dangerous association of that agent with "Pitocin". There might be sufficient vasopressin to cause arrhythmia and cardiac arrest. Other contributory factors were impaired coronary circulation and the vagotonic action of cyclopropane on the heart. The hazard might be eliminated by the use of a nitrous oxide muscle relaxant technique, and avoidance of the use of "Pitocin" in the treatment of patients likely to have coronary disease. Finally Dr. Cumpston referred to the relaxants in relation to the placenta. He said that there was evidence that gallamine crossed the placental barrier in appreciable amounts, whereas the quantity of "Tubarine" reaching the fœtus was negligible. However, in his experience gallamine had caused no respiratory depression in the baby. Dr. Cumpston stressed the importance of skilled anæsthesia in Cæsarean section. He said that the anæsthetist's aim should be a live and healthy baby, and a mother whose convalescence was uninterrupted by anæsthetic complications.

F. M. C. FORSTER (Victoria) presented a paper entitled "An Illustrated Review of the History of Cæsarean Section". He discussed the origin of the term "Cæsarean section" with particular reference to the improbable birth of Julius Cæsar in that manner, and traced the history of the operation from ancient times to the present day. He divided the history into three periods: the first, up to 1500, the era of legend; the second, from 1500 to 1876, the age of controversy; the third, from 1876 onwards, the years of rapid evolution and success. Dr. Forster said that his paper was essentially a pictorial review, and he showed a number of the earliest illustrations of Cæsarean births, derived from the illuminated manuscripts of the fifteenth century.

GORDON KING (Western Australia) read a paper entitled "Cæsarean Section—with Special Reference to Perinatal Mortality", in which he presented a series of 500 consecutive Cæsarean sections, all of which had been performed in Hong Kong during the years 1950 to 1955. Professor King said that the four commonest indications for Cæsarean section were disproportion (42%), "repeat" sections (21%), *placenta prævia* (16%) and the toxæmias (6%). Other indications included malpresentations, uterine inertia, pelvic tumours, etc. A relatively conservative attitude was taken towards operative interference, and the figures quoted represented a 1·4% incidence of Cæsarean delivery during the years under review. About 94% of the operations were of the lower segment type and about 5% were extraperitoneal Cæsarean sections, only 1% being of the classical type. Spinal anæsthesia was used in about 80% of the cases, the operation in the remainder being carried out under local or general anæsthesia. There were no maternal deaths in those 500 cases. With regard to the repetition of Cæsarean section, Professor King said that "repeat" operations were performed only when the original indication persisted. In other cases the patients were allowed to undergo delivery *per vias naturales* unless for some special reason. For that reason "repeat" sections accounted for only 104 cases out of the total of 500. During the period in which those sections were performed, 68 other patients had passed successfully through labour after previous Cæsarean section. It was of interest to note that no case of ruptured scar occurred in that group. Post-partum sterilization was performed in 84 of the 500 cases at the patients' request.

Turning to the perinatal mortality, Professor King said that there had been five cases of twin pregnancy in the series and among the 505 babies delivered there were 20 stillbirths and 35 neonatal deaths, a total perinatal mortality rate of 10·8%. The chief causes of death were pulmonary complications (such as asphyxia, atelectasis, aspiration of amniotic fluid and broncho-pneumonia) and intracranial hæmorrhage. It was significant that 29 of the 55 babies lost weighed less than 2500 grammes, so that over 50% of the wastage was associated with prematurity. When the figures were broken down into groups, it was found that in the main group of 315 planned Cæsarean sections for disproportion or "repeat" indications (comprising 63% of the total series), the perinatal mortality was only 3·17%.

That compared favourably with the overall perinatal mortality among the 34,711 patients delivered during the period under review, which varied from 3·0% to 3·4% during the six separate years. In the other groups of cases, however, it was found that the perinatal mortality varied directly with the severity of the maternal indication. In the eight cases of premature separation of the placenta, for example, there were five stillbirths, a perinatal mortality of 62·5%. In the 80 cases of *placenta prævia* there was a fœtal wastage of 33·3%. In the toxæmias of pregnancy there was a wastage of over 20%. Those relatively high rates were chiefly responsible for the 10·8% overall rate of infant wastage, which was undoubtedly too high. Now that Cæsarean section had become an operation of unquestioned safety for the mother, it was clear that the greatest care must be exerted to ensure the salvage of the offspring. To an increasing extent the prognosis for the child must be considered as well as the prognosis for the mother, when Cæsarean section was advised. Professor King finally discussed methods of reducing the present unduly high rate of fœtal loss in certain of the groups.

KATE CAMPBELL (Victoria) read a paper entitled "The Infant in Cæsarean Section". She said that the risk to the infant had to be studied from three points of view: (i) the hazard of the operation itself; (ii) the time of rupture of the membranes—whether the operation was performed before or after; (iii) the indication for which Cæsarean section was performed. Discussing the first category, Dr. Campbell said that the dangers from the operation were (*a*) difficulties in maternal anæsthesia, (*b*) fœtal bleeding from incision of or trauma to the placenta and (*c*) trauma to the infant. If the Cæsarean section was elective, the danger to the infant was the hyaline membrane type of atelectasis. If the operation was obligatory, in most cases the membranes had ruptured, and the risks to the infant were anoxia, trauma and infection; those were risks due to the abnormal labour, not to the Cæsarean section. Dr. Campbell then said that the indications for Cæsarean section could be divided into five main groups—disturbances of the mechanism of labour, *placenta prævia*, accidents to the cord, toxæmia and miscellaneous (maternal diabetes, placental insufficiency, bad previous obstetric history, medical indications, fœtal erythroblastosis with a previous bad history, etc.). In order to estimate the risks to the child, she had analysed the neonatal deaths in Cæsarean section in two series, one each from the Royal Women's Hospital, Melbourne, and the Queen Victoria Hospital, Melbourne, over the period 1953-1957. Dr. Campbell had reached the conclusion that Cæsarean section, in competent hands and with skilled anæsthesia, was a safe method of birth for the child, the neonatal death rate attributable to the operation being 0·35%. When other complications, either obstetric or medical, were present, the neonatal mortality depended almost entirely on the outcome of the complication.

R. C. GILL (New South Wales), in opening the discussion, said that the number of sections represented at the meeting illustrated the team-work so essential for good results. As an obstetrician, he felt that he was only a small part of the team. He had been most interested in Professor King's paper. It was evident that he had seen many cases of a type which Australian obstetricians no longer saw; yet his results were on the whole comparable with those in Australia, although his patients must have included a considerable number who were far less adequately fed than Australian women. As an indication of how the outlook had improved, Dr. Gill referred to Dr. Meares's figures from the Women's Hospital, Crown Street, Sydney, in 1952, in which there was a 1·4% fœtal wastage from Cæsarean section, as compared with the figure of 2·1% in Sydney at that time. Meares's perinatal loss was 8·5% over all. Those were considered to be quite good figures at the time. Dr. Gill said that he had been struck by Professor King's extensive use of spinal anæsthesia, and by the fact that he had managed to use it without any worry. He had also been surprised to notice no report of rupture of the lower uterine segment; that struck him as unusual. The report of 23 cases of extraperitoneal Cæsarean section surprised him. It was an operation now very little in vogue in Sydney, although he agreed that it might have its place, albeit a small one, since the use of antibiotics. Dr. Gill then congratulated Dr. Kate Campbell on the extremely good figures for perinatal mortality following Cæsarean section in Melbourne, which she had produced for the meeting. He said that the figures were a great improvement on the figures of a few years previously. With regard to thiopentone, Dr. Gill said that he had never thought that fairly rapid extraction was in any way harmful; but it was a relief to know that haste did not make much difference to the mortality rate, or rather, that it was quite safe to take the operation more slowly if conditions made it necessary to do so. He himself never used "Pitocin", which seemed quite superfluous. He always used ergometrine if it was needed.

R. DARK (Queensland) said that he remembered reading a report from the U.S.A. about the routine use of tracheal suction, and that it had reduced neonatal deaths by half after Cæsarean section. He asked for Dr. Campbell's comments on that point.

F. A. BELLINGHAM (New South Wales) said that his practice was to give equal parts of ergometrine and "Pitocin". He had found no trouble from doing so, nor did he think that one needed to worry about any bad effects of using thiopentone with "Pitocin". He said that the fear of damage from that cause had been exploded.

R. WALL (Tasmania) asked for Dr. Campbell's views on "milking" of the cord.

R. F. MATTERS (South Australia) asked Professor King about his procedure of lifting the placenta to drain extra blood into the baby. He said that that was controversial, and many Americans were against the practice.

W. H. J. COLE (Victoria) quoted his experiences regarding tracheal intubation in neonates. He said that it was a very tricky performance, but particularly if the baby weighed less than five pounds. It was most undesirable to establish endotracheal suction as a routine measure, unless the doctor concerned was highly practised in it, and of course it was a most difficult matter to obtain the necessary practice.

P. L. JOBSON (New South Wales) expressed great interest in Dr. Campbell's technique of "sucking out" the baby while it was still on the operating table after Cæsarean section. He said that that was also his practice in Sydney. However, he had noticed that after suction, babies tended to be carried out by the midwife lying flat on their backs, and that they would gurgle as though more fluid had found its way into the pahrynx either from the stomach or from the post-nasal space. He advocated the carrying of babies out of the delivery room face downwards.

Professor King, in reply, said that Dr. Gill had let him down lightly. He was not proud of his perinatal mortality, but he thought that it did highlight certain points at which one could stand on guard. He agreed also that poverty and malnutrition and the number of emergency admissions to hospital in Hong Kong had adversely affected his series. Referring to rupture of the lower uterine segment scar, he repeated that there had been no ruptures in five and a half years in any of his cases, despite a series of almost 200 "repeat" Cæsarean operations. He thought that that provided justification for not regarding a previous Cæsarean section as an automatic indication for a "repeat" operation. He agreed that there were relatively few indications for extraperitoneal Cæsarean section. All the same, it would be a pity if the technique was abandoned since, in spite of the safety of antibiotics today, they might not always serve so well in the future. He had not yet had any occasion to perform an extraperitoneal Cæsarean section in Western Australia. He agreed with Dr. Matters that drainage of blood from the placenta into the child was a controversial procedure. He himself used no force, but simply a very gentle "milking" of the cord. He thought that it compared with a normal delivery, in which a proportion of the placental blood was transferred to the fœtus by uterine contraction. He was particularly anxious to conserve blood for the baby in cases of *placenta prævia*, in which the placenta was likely to have been damaged.

Dr. Campbell, in reply, said that she agreed with Dr. Cole that endotracheal suction was most difficult, although

perhaps a little easier in babies suffering from *asphyxia pallida*. As a routine procedure she thought that it did more harm than good, although occasionally it was successful in skilled hands. In her opinion, "milking" of the cord or squeezing of the placenta was most undesirable in premature births, in which it was definitely contra-indicated, as it tended to lead to plethora and thence to an increased degree of jaundice, and so increased the risk of kernicterus. They tried to prevent their premature babies from receiving an extra supply of placental blood. Even when full-time infants were concerned, it was doubtful whether the extra blood belonged to the baby. After all, before delivery it was contained in the placenta. Its sudden transfer to the baby was equivalent to giving a large unwanted transfusion, and that might well be doing the child a disservice. Dr. Campbell fully agreed with Dr. Jobson that the face-down position was the desirable one for carrying babies from the labour ward, but found that it was hard to induce nurses to do that, because they wished to watch the baby's face for cyanosis and other symptoms.

Dr. Cumpston, in reply to Dr. Bellingham, said that he had not heard that the "Pitocin"-thiopentone combination was harmless, but he was glad to hear it.

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## SECTION OF PATHOLOGY, BACTERIOLOGY, BIOCHEMISTRY AND FORENSIC MEDICINE, SECTION OF ANÆSTHESIA, SECTION OF OBSTETRICS AND GYNÆCOLOGY, SECTION OF OTO-RHINO-LARYNGOLOGY AND SECTION OF SURGERY.

### The Management of a Coagulation Defect during the Period of Surgery.

A COMBINED MEETING of the Section of Pathology, Bacteriology, Biochemistry and Forensic Medicine, the Section of Anæsthesia, the Section of Obstetrics and Gynæcology, the Section of Oto-Rhino-Laryngology and the Section of Surgery was held to discuss the management of a coagulation defect during the period of surgery.

W. R. PITNEY (Western Australia) read a paper entitled "The Management of the Patient with a Coagulation Defect during the Period of Surgery". He said that major surgery was possible on patients with a coagulation defect, provided that the nature of the bleeding tendency was clearly understood and that the defect was temporarily correctable. The minimum laboratory tests necessary to investigate a patient with a hæmorrhagic disorder were the tourniquet test, examination of a blood film, estimation of the bleeding time, a platelet count, estimation of the prothrombin time and the thromboplastin generation test. The principles of surgery on a patient with a hæmostatic defect were to correct the defect so far as was possible before operation, to maintain the correction for a sufficient time to allow wound healing, to employ good surgical technique, and to use hæmostatic agents locally when they were indicated. Surgery was usually safe in thrombocytopenic purpura if the steroid hormones were used before operation, and if platelet-rich blood or plasma was given by transfusion during operation. Surgery was possible in hæmophilia if fresh plasma was transfused in sufficient quantities to result in a normal response to the thromboplastin generation test, or in a plasma anti-hæmophilic globulin concentration above 30%. A plasma concentrate of bovine origin, if available, had advantages over fresh plasma. In von Willebrand's disease, operation should be undertaken when the bleeding time was normal and the response to the tourniquet test negative. Steroid therapy might be useful. In liver disease the coagulation defects were complex, and the prolonged prothrombin time and abnormal thromboplastin generation should be corrected by transfusion of fresh plasma before major surgical procedures were undertaken.

W. WOODWARD (Tasmania) said that it would be hard to select a more valuable topic for a combined meeting. He asked Dr. Pitney if he would give further information on purpura, firstly with regard to whether splenectomy was of the same value in secondary as in essential thrombocytopenic purpura, and secondly, whether there was anything that could be done to prevent the risk of post-operative thrombosis with the platelets increased in number after the spleen had been removed.

Dr. Pitney, in reply to Dr. Woodward, said that splenectomy should never be performed unless it had been shown that the spleen was destroying the platelets. That applied particularly to the enlarged spleen which was being incriminated as the cause of the purpura.

JOHN COLEBATCH (Victoria) said that Dr. Pitney had shown how certain features of the patients' history might give valuable indications of a bleeding tendency. But Dr. Colebatch pointed out that in children, particularly the younger ones, there had usually been no previous tonsillectomy or major surgery, no dental extractions and of course no menorrhagia. A hæmorrhagic tendency in that age period could therefore be easily missed unless inquiries were made regarding easy bruising and bleeding from cuts and from circumcision. With regard to idiopathic thrombocytopenic purpura, Dr. Colebatch said that splenectomy might still be the treatment of choice for adults. But for children that was not so, for at least 80% of patients would respond to more conservative measures.

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## SECTION OF ANÆSTHESIA AND SECTION OF OTO-RHINO-LARYNGOLOGY.

### Anæsthesia in Oto-Rhino-Laryngology.

A COMBINED MEETING of the Section of Anæsthesia and the Section of Oto-Rhino-Laryngology was held to discuss anæsthesia in oto-rhino-laryngology.

W. COLE (Victoria) read a paper entitled "General Anæsthetic Procedures for Endoscopies, and for Laryngeal Operations", in which he considered the general anæsthetic problems for the endoscopic procedures of œsophagoscopy, bronchoscopy and laryngoscopy and for laryngeal surgery. For œsophagoscopy, he said that general anæsthesia of surgical depth administered endotracheally with spontaneous breathing was satisfactory. For bronchoscopy, thiopentone and succinyl choline chloride anæsthesia was satisfactory if the procedure was a short one; for longer operations, the best method was general anæsthesia with trichloroethylene combined with surface anæsthesia of the larynx and tracheo-bronchial tree. In laryngoscopy, while short procedures might be carried out with thiopentone and a relaxant, it was preferable to use a combination of trichloroethylene general anæsthesia, with or without a naso-tracheal tube, and surface anæsthesia of the larynx and trachea. Dr. Cole said that there was great potential danger in cases in which organic obstruction to respiration was present. In many instances they were best dealt with by a preliminary tracheotomy under local anæsthesia as an initial step in treatment and investigation. For operations on the larynx, a preliminary tracheotomy was performed, and the inhalation anæsthetic was administered through a sterile, specially shortened endotracheal tube inserted through the tracheostomy tube by the surgeon. At the conclusion of the operation that tube was replaced by a metal tube.

R. V. BLAUBAUM (Victoria) read a paper entitled "Anæsthetics and the Ear, Nose and Throat Surgeon". He began by giving a brief account of the changes and developments in anæsthesia for ear, nose and throat surgery, and indicated the importance of the introduction of the Magill's tube, of barbiturates for intravenous administration, of the relaxing agents and of the closed-system technique. He said that those developments had brought anæsthesia to its present stage. The anæsthetist was of great importance in the surgical team. It was imperative that he should know clearly, in advance, what the surgeon proposed to do, and the scope and duration of the operation. Only in that way could he give the best possible treatment to his patient. Modern methods of anæsthesia had obvious

advantages in celerity, comfort for the surgeon and agreeableness to the patient. However, they offered perhaps less margin for error than did the methods of the past. The modern anæsthetists required to be thoroughly well trained and to have his equipment in faultless order. Dr. Blaubaum referred to the use of the relaxing agents, and said that ordinarily a short-acting relaxant was to be preferred. It was often an advantage to preserve spontaneous breathing, and sometimes the use of a long-acting relaxant could be positively dangerous. There were dangers attendant on the induction of anæsthesia with thiopentone. Discussing anæsthesia for tonsillectomy, Dr. Blaubaum said that for adult patients it was usual to induce anæsthesia with thiopentone and suxamethonium, insert the tube and continue the anæsthetic with nitrous oxide and oxygen. In the young adult, anæsthesia might be maintained by the insufflation of trichloroethylene into the side tube of a Boyle-Davis gag. That avoided the need for intubation, gave good blunting of pharyngeal reflexes and was said to reduce hæmorrhage. Trichloroethylene was not inflammable, and did not produce profound relaxation of muscles, but desensitized the pharynx and trachea. For children, Dr. Blaubaum still preferred the ethyl chloride ether sequence, premedication consisting of atropine given alone one hour before operation. Much depended upon proper psychological preparation of children before anæsthesia. Dr. Blaubaum went on to say that, except in certain circumstances, submucous resection of the septum was best performed under local analgesia. Mastoid operations were performed under general anæsthesia, with thiopentone and suxamethonium for induction and nitrous oxide and oxygen maintenance. For fenestration he preferred ether anæsthesia. Referring to anæsthesia for bronchoscopy, Dr. Blaubaum said that in the past he had generally used local analgesia, with good results in most cases. At the present time he did not perform many bronchoscopies; mostly he used thiopentone, suxamethonium, and spraying of the vocal cords with a 4% solution of lignocaine. Oxygen was given through the anæsthetic tube of the bronchoscope. For direct laryngoscopy, he now used a combination of thiopentone, suxamethonium and lignocaine spraying. In all the procedures mentioned, proper oxygenation of the patient could be ensured by (*a*) lung inflation with oxygen by means of a mask and bag, (*b*) insufflation of oxygen through a small intranasal catheter and a modified form of artificial respiration, or (*c*) insufflation of oxygen into the trachea, through a small catheter passed between the vocal cords. Referring to anæsthesia in laryngeal obstruction, Dr. Blaubaum said that it was a grave problem, and was often encountered in cases of carcinoma. Transglottic intubation in such cases was undesirable, because of the risk of "seeding" the trachea. In the presence of stridor and signs of respiratory embarrassment, induction of anæsthesia with thiopentone was undesirable, and general anæsthesia offered difficulties. The performance of a preliminary tracheotomy was wise, with local anæsthesia (1% procaine solution and adrenaline). A little cocaine was then sprayed into the trachea before it was opened, a cuffed Magill's tube was passed through the tracheotomy wound, and thiopentone and endotracheal anæsthesia was induced and maintained in the usual way.

R. S. W. THOMAS (Western Australia), in opening the discussion, said that there was some historical excuse for his doing so, as in the 1920's he had been Dr. Blaubaum's father's resident and registrar and the second person at the Alfred Hospital to use endotracheal anæsthesia. Since then he had given thousands of anæsthetics, but now he could just admire modern anæsthesia and its complexities. The early method was gum elastic catheter insufflation, and even that revolutionized ear, nose and throat surgery, which previously had been performed mostly under local anæsthesia or chloroform anæsthesia with no sucker. In fact, it was partly responsible for an excess of ear, nose and throat surgery, especially double jobs in the 1920's. Dr. Thomas said that a further revolution had now taken place. Though modern anæsthesia had made successful much major elective surgery, perfection was yet to be attained and would come only by constant vigilance and cooperation between all of them. There were problems still even among the common conditions. Removal of tonsils and adenoids was still occasionally attended by fatalities and more frequently by morbidity. Dr. Thomas said that his preference was for "Nembutal" in pre-operative medication; but it increased the difficulties and dangers of induction, anæsthesia and the pre-operative and post-operative handling of children. Dr. Thomas wondered whether those present might continue the search for better drugs for use before operation and better routines. Further anæsthesia for post-tonsillectomy hæmorrhage was an occasional nightmare. Again, ear, nose and throat cases provided a higher percentage of allergic subjects than general surgery. Dr. Thomas asked whether it was wise to use multiple injection methods for such patients, especially children. He wondered whether a cover of "Phenergan" or some similar drug might help. In his experience it seemed to do so. Ether and oxygen seemed to remain the standby for removal of tonsils and adenoids. Dr. Thomas wondered whether the speakers regarded them in that way for emergency operations on children. Dr. Thomas quoted two cases in which ether and oxygen insufflation had made possible the passage of a bronchoscope to remove a foreign body, and he asked whether there was a better way of dealing with such cases. A similar problem was presented by emergency tracheotomies for infants with laryngeal obstruction, such as acute tracheo-laryngo-bronchitis. In his experience the tempting preliminary intubation had precipitated further trouble. It seemed better to spend those few minutes getting some local infiltration of anæsthetic into the tissues and some ether and oxygen into the child. If intubation could be easily carried out in such cases, he doubted whether they were truly emergencies, and he asked for guidance on that point. Referring to tonsillectomy in adults, Dr. Thomas said that the use of a big tube and special drugs made those difficult cases harder. Like Dr. Blaubaum, in Western Australia in suitable cases they used insufflation down the gag. Whatever method was used, the big soft clot behind the palate, if not sucked out, was a danger after operation. Local anæsthesia was best for submucous resection of the nasal septum. The dangers could be lessened and the efficiency increased if the head-low position was used before the injection of the local anæsthetic agent where it was needed, so that it was not washed dangerously down the pharynx. Also, in local anæsthesia, if pethidine was used with sedatives before operation instead of morphine, it was possible to avoid the problem of morphine sickness at the commencement of the local anæsthetic, and it was then possible to use morphine later if required.

J. SHERREY (Tasmania) said that in the treatment of children with acute laryngo-tracheo-bronchitis it was best to carry out intubation before tracheotomy was performed That made it less of an emergency intubation.

S. V. MARSHALL (New South Wales) said that ether was still most useful in ear, nose and throat surgery. Closed circuits caused more bleeding. Dr. Marshall stressed the importance of removing by suction the blood which was on the cuff of the intratracheal tube. He suggested that it was better to play with the child and give little premedication than to give "Nembutal", which produced a long post-operative period of sleep. Dr. Marshall finally asked about the use of pethidine for tachypnœa occurring with "Trilene".

T. P. CRANKSHAW (Victoria) said that at Prince Henry's Hospital, Melbourne, as a routine measure they used thiopentone given by the rectum for inducing anæsthesia in small children. In his experience the recovery time was not prolonged after operation. As all patients were observed in the recovery room, he had formed very definite ideas on the time it took to regain consciousness, and he did not like "Nembutal" for that reason. Dr. Crankshaw asked Dr. Cole whether he used manual compression of the chest in bronchoscopy, provided that the patient had a mobile chest and was not too obese. For that technique he used what he called a modified Holger-Nielsen method, by hooking his thumb under the costal

margin and lifting the chest in inspiration as well as compressing it in expiration. Recent experience with fluothane showed it to be an ideal anæsthetic agent in ear, nose and throat cases, as venous oozing did not occur. Relaxation of the jaw was good and recovery time was not delayed.

L. G. B. CUMPSTON (Western Australia) asked about the value of insufflation of "Trilene" into the mouth. He said that it was not inflammable, but that phosgene was produced.

N. MEACLE (New South Wales) asked what was the best form of anæsthesia for bronchography in bronchiectasis and after bronchoscopy.

Dr. Blaubaum, in reply to the question about the production of phosgene in the mouth, said that trichloroethylene was the only agent available for use in that way.

Dr. Cole, in reply to Dr. Thomas's question about the anæsthetic agent to be used in hæmorrhage following tonsillectomy, suggested ether or "Trilene". He said that the anæsthetic should be administered with the patient lying on his side. In reply to Dr. Marshall, who had asked about tachypnœa following "Trilene", Dr. Cole said that if it persisted with a small dose, pethidine should be used. In bronchography, "Trilene" could be used with surface anæsthesia, and a small nasal catheter should be inserted into the trachea for both the local anæsthetic agent and the contrast medium.

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## SECTION OF ANÆSTHESIA; SECTION OF PUBLIC HEALTH, INDUSTRIAL HEALTH AND HOSPITAL ADMINISTRATION AND SECTION OF SURGERY.

### Resuscitation Work in Hospitals.

A COMBINED MEETING of the Section of Anæsthesia, the Section of Public Health, Industrial Medicine and Hospital Administration and the Section of Surgery was held to discuss resuscitation work in hospitals.

PATRICIA WILSON (Victoria) read a paper entitled "Resuscitation in the Hospital". She said that from the anæsthetic viewpoint, resuscitation problems fell under four headings. The first was the transport of blood to the peripheral circulation. Dr. Wilson gave some case histories, to illustrate the problems of management of acute hæmorrhagic shock, and stressed the dangers of overloading the circulation by transfusion and extreme postures. The second heading was the transport of oxygen to the blood. Dr. Wilson said that the chief causes of impairment of oxygenation of the blood were respiratory depression due to drugs, intracranial lesions or chronic disease, and respiratory obstruction due to the tongue or to inhalation of foreign bodies such as blood or vomitus. Treatment consisted essentially in removal of the cause, if possible, institution of artificial respiration, and institution of artificial circulation by intermittent cardiac compression if necessary. The third heading covered the problems of fluid and electrolyte balance. Dr. Wilson discussed the dangers of dehydration and over-dehydration and the importance of ventilation in cases of uncorrected acidosis and alkalosis. The fourth heading covered problems associated with the administration of special drugs. Dr. Wilson cited two examples. The first referred to the use of ganglion-blocking agents for the treatment of hypertension, and said that they might mask signs and symptoms of acute abdominal catastrophe and the onset of shock. The second referred to the administration of cortisone, which she said might induce adrenal insufficiency; that could be precipitated by surgical or anæsthetic insult. Dr. Wilson said in conclusion that the anæsthetist must primarily be a doctor and understand all problems associated with surgical procedures, and that prevention of trouble and good teamwork were essential.

C. J. MCCAFFREY (New South Wales) read a paper entitled "Organization of Resuscitation Work in Hospitals". He defined resuscitation as "to restore to life or consciousness," and said that the objective was to provide, as early as possible, adequate medical and nursing care for patients needing resuscitation. That entailed the provision of medical staff and an organization enabling it to function adequately. The medical staff needed to be organized on the basis of accident, surgical, medical, anæsthetic and pathological services. The organization needed to include a casualty department, operating theatres and resuscitation wards. The proper use of those facilities should ensure that in all cases in which resuscitation was needed whether as the result of an accident or of some surgical or medical condition, treatment was afforded on a routine rather than on an emergency basis.

I. H. CUMING (Victoria) read a paper entitled "Resuscitation in Hospitals". He said that a sick patient must always be treated as a whole. One could not treat the electrolyte imbalance and let the patient die of his respiratory obstruction, his cardiac failure, his diabetic coma or his unrecognized empyema, etc. In the same way, it was no good relieving the band obstruction of the small gut and allowing the patient to die of an electrolyte imbalance. Because of the foregoing, the field covered by "resuscitation" was a very wide one. It required a good working knowledge of general medicine and surgery as well as physiology as a necessary adjunct to the ability to handle abnormal circulatory patterns, fluid and electrolyte imbalance and so forth. Dr. Cuming said that if clinicians were to use those methods, they must know what could be done with them and they must know their limitations. He mentioned the limitations, because in most cases "resuscitation" was only ancillary to the definitive treatment, and it should be treated as such. One should not think it could take the place of the definitive procedure. The basis of good "resuscitation" was good medicine and surgery, and in turn, with such very ill people, often the basis of good medicine and surgery was good "resuscitation". If one person was to be put in charge of that work in a hospital, that person should be a practising clinician, probably a surgeon. Dr. Cuming considered it very dangerous to put that work into the hands of a technician; his outlook was necessarily too limited. With very ill patients, good team work was essential.

W. W. WOODWARD (Tasmania) referred to what Dr. Wilson had said about cardiac arrest. He agreed that when the cause was tracheal obstruction, tracheotomy was required before cardiac massage. If the cardiac arrest was due, not to anoxic anoxia, but to oligæmic anoxia from inadequate filling of the heart with blood, then an "autotransfusion", obtainable by elevating all limbs and raising the pelvic end of the table, should be carried out as described in *The Lancet* of January 12, 1952, and as quoted in Lee's "Synopsis of Anæsthesia". Dr. Woodward also said that during or before operation for the massive gastro-intestinal hæmorrhages, mentioned by Dr. Wilson, direct transfusion of whole blood as given by Dr. D. P. Churton might become necessary. A bottle of stored blood contained 100 millilitres of anticoagulant with 400 millilitres of blood, so that whole blood was required to provide clotting agents.

G. A. KELSALL (Western Australia) asked whether Dr. Wilson had considered the possibility that the massive, rapid transfusion of citrated blood might have been a contributory factor in her first case. He said that often he had seen the patient with hæmaturia, who for months had been receiving alkaline therapy, admitted to hospital with an alkali reserve of 100 volumes *per centum*, and a depleted serum calcium level as low as six or seven milligrammes per 100 millilitres. At operation and before, such a patient might be given as much as five or more litres of blood within a few hours, and he died on the operating table during the suturing. Dr. Kelsall contended that the giving of large volumes of stored citrated blood was often the lethal factor contributing to cardiac failure in such cases. Stored citrated blood was necessarily devoid of ionized calcium, to obtain the essential anticoagulant effect for blood bank purposes. When blood was stored for any length of time, the serum potassium content might also rise to lethal levels. A heart-lung preparation per-

fused with a solution of low sodium and high potassium content would stop in diastole. When cardiac surgeons wished to arrest the beating of the heart, as was a well-known physiological fact, they employed citrate. Old stored citrated blood was such a solution, and if the body was unable to metabolize the citrate within a given time, the heart was driven to failure. Dr. Kelsall went on to say that often he gave only two pints of blood, and then 20 cubic centimetres of calcium gluconate solution (into another vein). Frequently that would raise the blood pressure, which the transfused blood had failed to do.

M. S. BENSON (Victoria), referring to the side issue of the management of hæmatemesis, agreed that ideal treatment would be afforded by the cooperation of the speakers, but said that he hoped that in his own case Dr. Churton or some other enthusiast would administer whole blood by direct transfusion. Five years' experience at Mooroopna Base Hospital, which served the Goulburn Valley, and where Dr. Mackellar, a Sydney enthusiast, had established a transfusion service with direct transfusion as a routine, had convinced him of its superiority.

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## SECTION OF DERMATOLOGY AND SECTION OF OPHTHALMOLOGY.

### Skin Problems of the Face, Eye and Scalp.

A COMBINED MEETING of the Section of Dermatology and the Section of Ophthalmology was held to discuss skin problems of the face, eye and scalp.

J. C. BELISARIO (New South Wales) read a paper entitled "Carcinoma of the Eyelids". He said that the condition was not uncommon in Australia, particularly in relation to the lower lid, and the rodent carcinoma was the variety usually found. The term carcinoma (a malignant tumour derived from epithelium) was preferable to the term epithelioma (a benign tumour derived from epithelium). The term rodent carcinoma was to be preferred to basal-cell carcinoma, since recent evidence had indicated that the lesions rarely arose from the basal-cell layer of the epidermis, and the squamous carcinoma did arise from that layer. Dr. Belisario went on to say that the differential diagnosis included rodent carcinoma, squamous carcinoma, melanocytoma (soft nævus or mole), *lupus vulgaris*, pyogenic granuloma, *xanthelasma palpebrarum*, sarcoma, *lupus erythematosus*, sarcoid, keratoacanthoma, cutaneous horn, cysts, fibroma, gumma, keloid, nodular solar keratosis, seborrhœic keratosis, reticuloendothelioma, lipoma, chronic ulcer, verruca, mycotic granuloma, chronic insect-bite, foreign body granuloma and chalazion. Dr. Belisario indicated criteria of diagnostic value between keratoacanthoma and squamous carcinoma, and drew attention to the use of a Wood's light in the diagnosis of ulcerated squamous carcinoma from other forms of ulceration. Discussing treatment, he said that the methods available in order of preference were: X radiation; cautery removal, followed by X radiation; the cautery-curette-podophyllin technique, if the lesion was not too close to the edge of the lid (if so, vitamin $K_5$ powder was then substituted); radium or radon; cutting cautery; cutting or desiccating diathermy; scalpel surgery. Dr. Belisario said that the first three were preferable for cosmetic reasons, and the risk of damage to the naso-lachrymal duct was reduced. X radiation had the advantage over radium, in that the eye could be properly shielded with the former. Choice of the last three methods depended on the size and site of the lesion.

W. J. JAMIESON (Victoria) read a paper entitled "Rosacea", in which he reviewed recent studies into the ætiology and pathogenesis of rosacea, including histological, clinical and experimental investigations, and refuted some long-standing concepts. He also reviewed the relationship of rosacea to ocular disease, on the basis of case analyses. Dr. Jamieson finally presented a summary of modern methods of treatment of rosacea and the ocular manifestations.

F. J. B. MILLER (South Australia) read a paper entitled "Ophthalmological Aspect of Some of the Skin Problems of Face and Eyes". Dealing first with rosacea, he said that minor ocular troubles, blepharitis, conjunctivitis and marginal corneal ulceration, were commonly associated with, but not specific to, rosacea. Severe keratitis was specific, but when established progressed independently of the skin lesions. There was no evidence that bacterial infection was any more than a complication. Pathological changes were not specific. Allergy though advocated by some was not proven as a cause. There was a seasonal factor, the hotter months being the time in which most new cases and relapses occurred. X-ray therapy was an important form of treatment for severe keratitis.

Turning to the question of *herpes zoster ophthalmicus*, Dr. Miller said that this was a disease mostly affecting old people. It was caused by a virus the same as or closely related to that of varicella. The virus attacked the ophthalmic division of the fifth nerve and its ganglion and spread slightly to adjacent structures. If the nasociliary branch was affected, serious damage to the eye might result.

Finally, Dr. Miller discussed contact dermatitis. He said that a vast number of substances, including dyes, cosmetics and drugs, could cause inflammation around the eyes. Atropine and allied drugs and antibiotics were of special interest to the ophthalmologist in that regard. Some metal and plastic spectacle frames also could cause dermatitis around the eyes.

J. MADIGAN (Victoria) said that rodent carcinoma of the eyelid and inner canthus was seen regularly in Victoria. In general those tumours were treated either with superficial X-ray therapy or by plastic surgery. Dr. Madigan said that he agreed with Dr. Belisario's objections to radon seed implants. The strontium 90 applicator had advantages over radium plates for very superficial lesions. He wondered why Dr. Belisario used cautery-curettage and X-ray therapy or podophyllin application as combined methods of treatment, rather than a single therapeutic agent. Dr. Madigan went on to say that large rodent carcinomata presented special problems, especially near the inner canthus. Commonly they preferred plastic surgery for those lesions, and in the event of bone invasion being already present they preferred to avoid X-ray therapy except for palliation treatment. The advent of supervoltage equipment might alter that approach, in that adequate dosage for deeply infiltrating tumours was possible without the likelihood of producing bone necrosis.

H. A. S. VAN DEN BRENK (Victoria) said that he wished to raise some points regarding Dr. Belisario's paper. First, if they were to exclude cautery, cautery-curette-podophyllin, "Synkamine" powder, cutting diathermy and cutting cautery from the list of methods of treatment recommended, and confined themselves to the disciplines of surgery or irradiation in the treatment of malignant lesions of the eyelids, he wondered whether they would lose much of value. Secondly, he thought that an operable tumour of the eyelids in a young patient was better treated by surgical ablation and competent plastic repair than by irradiation, provided such repair was feasible and that functional tissue resulted. The atrophic tissues of an irradiation scar would not stand the wear and tear over the years that normal tissues were able to withstand, and that applied particularly to regions subjected to chronic trauma—for example, pressure from spectacles at the inner canthus. Thirdly, the problem of an inner canthus carcinoma must not be underestimated. The superficial manifestation of the lesion often failed to reflect the extent of infiltration. The latter might involve the medial wall of the orbital cavity and bone itself. If total surgical ablation and repair of such a lesion were possible, that was the treatment of choice, when undertaken by a competent plastic surgeon. If the lesion was strictly inoperable, radical irradiation to effect cure or control demanded a choice of radiation quality to give homogeneity of dosage to the whole of the tumour. That could not be confined to soft X rays, and the use of

higher voltage therapy was necessary, with various modifications, such as wedge filters, to provide homogeneity of dosage at cancericidal levels. Furthermore, the proximity and involvement of bone by the tumour was to be considered. Ionizing radiations in the higher energy range gave a differential absorption of radiation between bone and soft tissues approaching unity, and the use of supervoltage therapy was indicated where bone was involved by the tumour process, or where underlying bone must receive a substantial amount of the radiation dose. In reply to a point raised by a previous speaker that pathological studies showed that a cancer should not be treated by a carcinogen—namely, ionizing radiation—because the cancer had been produced by ultra-violet light, which had similar physical properties to the therapeutic agent used, Dr. Van den Brenk reminded the meeting that, after all, ionizing radiations properly used could cure 95% of unselected skin cancers.

DAVID OFFICER BROWN (New South Wales) thanked Dr. Belisario for his informative paper, but found it hard to understand why he should have placed "cutting surgery" last on his list of treatment methods. It was evident that there were clear indications for the use of cutting surgery in many instances. It was not correct to say in a general way that X radiation produced better cosmetic results. Dr. Officer Brown further thought that, provided adequate precautions were taken when cutting methods were used, the lachrymal apparatus could be better protected from avoidable damage than when the various methods of X radiation were used. He mentioned that in a recent personal communication Dr. V. McGovern had again stressed the microscopic similarity between the dermal changes in skin altered by solar radiation and by radioatrophy. Microscopic studies indeed suggested that there were most cogent reasons why X radiation should never be used in the treatment of skin carcinomata developing in skin already damaged by solar radiation. The very large numbers of skin carcinomata seen in New South Wales and Queensland had their origins in skin damage by solar radiation. That fact had been long recognized and accepted by dermatologists and surgeons. It often had seemed that the treatment of recurring lesions by X radiation had caused a temporary improvement, but further recurrence, central or lateral, was in the long run almost inevitable. Adequate surgery for removal of recurrence after irradiation required excision of the whole irradiated area.

Dr. Belisario, in reply to Dr. Madigan, said that combined techniques had several advantages over the use of a single therapeutic agent. In the case of irradiation being preceded by cauterization and curettage, later cosmetic results were considerably improved without loss, and he believed, with actual increase in therapeutic efficiency in areas such as the inner canthus. The main mass of a growth was destroyed with a cautery knob, and the cauterized tissue was removed down to the base of the lesion with a curette. In that way a considerably smaller dose of X rays could be applied to the base of the lesion and the surrounding tissues than would be necessary if the tumour mass was present during irradiation. Likewise, if the cautery alone was employed, it would be necessary to destroy tissue beyond the clinically obvious base of the lesion to ensure that all peripheral tumour cells were destroyed. Consequently, the clinical sequelæ which followed irradiation were reduced, as also was the degree of tissue destruction required with the cautery alone. The improvement in cosmetic results was considerably more apparent after the use of podophyllin in place of irradiation. Podophyllin was an anti-mitotic agent, and destroyed the remaining tumour cells after cauterization and curettage; moreover, there were no later sequelæ such as almost invariably followed irradiation given in dosages necessary to destroy carcinomata. Such sequelæ comprised telangiectases, atrophy, pigmentation and occasionally ulceration, and could be very unsightly. The treatment also had the added advantage that it could be used, not only adjacent to a previously treated area, but if necessary on the same area when there were recurrences after irradiation. Dr. Belisario went on to say that whenever possible, he preferred one of the treatments he had mentioned for lesions in the inner canthus region, as there was less likelihood of damaging the naso-lachrymal duct than with scalpel surgery, particularly if it was involved by the growth. When the bone was involved, he agreed with Dr. Madigan that supervoltage therapy might materially increase the efficacy of irradiation for such lesions.

In reply to Dr. D. Officer Brown, Dr. Belisario said that he had been careful not to be dogmatic in his statement that scalpel surgery was always at the bottom of the list as a method of choice for lesions of the eyelids. He had said quite definitely that there were times when scalpel surgery might be the method of choice, but that in general better cosmetic results could be obtained by the cautery-curette-podophyllin or "Synkamine" techniques, followed by combined techniques, or irradiation alone. Also he believed that the best over-all results were obtainable by cooperation between the dermatologist, the deep radiotherapist and the plastic surgeon. He agreed with Dr. Officer Brown that radiation therapy could be on the way out for treatment of carcinomata of the skin, but not on account of scalpel surgery since he had not employed X rays or radium for the treatment of early carcinomata of the skin (except in such instances as when cartilage or the edge of an eyelid was involved) for about six years, because of the better results obtainable with the podophyllin or "Synkamine" techniques. However, until chemotherapeutic techniques had been perfected and stood the test of time, radiotherapy must remain an important and valuable form of treatment for cutaneous cancer.

Up to date he had seen only three recurrences, all at the edge of the treated area, following cautery-curette-podophyllin technique. He was encouraged now to believe that that form of therapy would stand the test of time even better than radiotherapy had done. However, it might be several years, up to even ten or more, before radiotherapy became completely replaced for larger lesions by that or some better form of chemotherapy yet to be discovered. In that respect it was of interest to note that Chatard in 1957 had successfully removed a large rodent carcinoma involving the ear region, which also involved the underlying tissues, by local applications of podophyllin. That success was obtained with a lesion of ten years' duration in a male, aged 79 years, after both surgery and radiation therapy had been considered impracticable.

In reply to Dr. Van den Brenk, Dr. Belisario said that they would lose much in cosmetic results by excluding the cautery, cautery-curette-podophyllin and "Synkamine" powder, but not so much from excluding the cutting cautery or diathermy alone, even though those latter modalities could often produce good results in the hands of experts. Also, the chances of damage to the naso-lachrynal duct could be considerably reduced by combined techniques. He agreed that in certain instances, plastic surgery could be the method of choice, particularly for young people. But there again, when the edge or whole thickness of a lid was involved, he had seen considerably better cosmetic results obtained by correctly fractionated radiation over the last 30 years than could usually be obtained by surgical procedures, to which resort could always be had in the rare event of a bad cosmetic result from irradiation. Concerning the inner canthus and the pressure of spectacles on atrophic tissues of an irradiation scar, Dr. Belisario said that that comprised one of the main reasons why he preferred the cautery-curette-podophyllin or "Synkamine" technique, provided the actual edges of the lids or the bone were not involved, since there were no sequelæ such as atrophy, telangiectasia, etc. He agreed with Dr. Van den Brenk also that plastic surgery and/or harder radiation was to be preferred if the adjacent bone was involved. However, he did not agree with Dr. Van den Brenk's suggestion (which appeared to have been omitted from the written summary of his remarks) that harder radiation (in the region of 0·5 to 1·0 millimetre of copper half-value layer) should be used as a routine, if radiation therapy was employed for lesions in the inner canthus region, but that X radiation of a half-

value layer of approximately 1·0 to 1·5 millimetres of aluminium was much to be preferred if there was no clinical evidence of bone involvement—in other words, if the tumour was movable on the underlying structure. If the harder radiation was used, not only was there unnecessary damage to underlying tissues, but the likelihood of radiation necrosis and ulceration was greatly increased. That had not only been his own experience, but it was supported by other workers.

## SECTION OF DERMATOLOGY AND SECTION OF PUBLIC HEALTH, INDUSTRIAL MEDICINE AND HOSPITAL ADMINISTRATION.

### Industrial Dermatoses.

A COMBINED MEETING of the Section of Dermatology and the Section of Public Health, Industrial Medicine and Hospital Administration was held to discuss industrial dermatoses.

E. J. C. MOLESWORTH (New South Wales) read a paper entitled "Industrial Dermatoses".

D. M. CLARKE (Victoria) read a paper entitled "Occupational Dermatoses other than Dermatitis", in which he gave brief accounts of the following: tar warts, keratoses and epithelioma; oil acne, chloracne and folliculitis; "white fingers"; burns, keloids, chilblains and frost-bite; chronic solar dermatitis and its sequelæ; atomic radiation hazards; ulcers due to chrome, lime and zinc chloride, and paronychia; hyperidrosis, moniliasis and tinea acceptable as "occupational"; parasitic infections; human and animal scabies; grain itch and grocer's itch; erysipeloid, butcher's pemphigus and anthrax; syphilis and rat-bite fever; nail disorders and pilonidal sinus of barbers; silicon and beryllium granulomata; occupational cancer.

R. T. C. HUGHES (New South Wales) discussed a number of dermatological conditions from the medico-legal and industrial physician's point of view. He said that aggravation due to occupation to be of significance must be material—in other words, it must alter the course or severity of the disease. If a worker was unfit because of aggravation of a constitutional rash, it was difficult to get him back to work until the condition had been cured, unless suitable clean dry work could be found. A common diagnostic difficulty was the pompholyx type of rash on the hands. It had to be distinguished from a dermatophytide, tinea of the feet or hands, contact dermatitis, drug eruptions, eczematides, post-traumatic infective eczema, pustular bacteride, pustular psoriasis, scabies, *epidermolysis bullosa*, recurrent herpes and miliaria localized to the hands and feet (Grant Peterkin). Owing to the anatomical features of the hand, any eczema, whether of endogenous or exogenous nature, might manifest itself as a vesicular sago-grain eruption (Gordon). Examination should at least include the feet as well as the hands. Pompholyx might be secondary to acute tinea or eczema of the feet, which might itself have an occupational association, but contact dermatitis of the hands might coexist with the foot condition. A job entailing hot feet might cause occupational dysidrosis of the feet; otherwise such dysidrosis in addition to that on the hands suggested a constitutional origin. The more nearly the vesicular rash followed the typical distribution of pompholyx, the more likely was it to be constitutional. Sago-grain vesicle formation on otherwise normal palms suggested an endogenous origin, as did symmetrical bilateral distribution and sweating palms, while associated erythema suggested occupational origin. Desquamation after extensive pompholyx left new and tender skin, which was more vulnerable to irritants. Tinea of the feet might have occupational association if the work caused the feet to be abnormally hot; otherwise it was not likely to arise out of a worker's job. Many authorities had not found an increased incidence of tinea where communal baths were in use, but others had found the opposite. Experiments had shown that infecting feet with tinea did not necessarily cause the disease of tinea of the feet. Studies of the spread of the disease in families had given contradictory results.

Dr. Hughes mentioned the study of the literature and the personal experience of Klauder in regard to the possible relationship of trauma and *herpes zoster*, appearing in from one to thirty days after trauma. He then discussed artefacts as a reminder that one should remain alert to the possibility. Two examples were given, one being obviously fraudulent. It was pointed out that something not quite right about the shape, size, number, situation and type of lesions, and their progress, should arouse suspicion.

Dr. Hughes then described experiments with fibreglass and glass wool, and expressed the opinion that the effect produced by them was purely mechanical. He said that most employees developed an unexplained immunity, but a few had to leave the industry. Tight wristbands and collars were not considered to be a good protection. He also described an eczematous condition in the region of some traumatic lesion, not necessarily associated with the use of an irritant application, or with infection.

Dr. Hughes laid stress on the importance in industrial medicine, including dermatology, of taking a good history, which required time, patience and skill. A few relevant points were mentioned, such as a reminder that there were possible irritants or sensitizing contacts away from work, that the patient's own diagnosis of the cause must be accepted with reserve, and that he might be ignorant of the nature of his cutaneous contacts. Some contacts appeared to be an obvious cause of the rash, while in other cases an apparently obvious cause was not responsible for it. An appeal was made for more care in certification, and finally the hope was expressed that doctors would not allow their therapeutic efforts to be dictated by the blandishments of the medical detailer or the persuasive advertising matter which flooded their letter boxes.

## SECTION OF HISTORY OF MEDICINE AND SECTION OF MEDICINE AND EXPERIMENTAL MEDICINE.

### Blood Transfusion.

A COMBINED MEETING of the Section of History of Medicine and the Section of Medicine and Experimental Medicine was held to discuss the history and modern concepts of blood transfusion.

M. L. VERSO (Victoria) read a paper entitled "Blood Transfusion in the Early Nineteenth Century", in which he reviewed some of the developments in blood transfusion during the period from 1818 to 1852. He described the experimental and clinical investigations carried out by James Blundell and discussed the principles which he laid down. Dr. Verso said that Blundell had shown that blood transfusion was a safe and feasible procedure that could be life-saving, that air embolism was not a great risk, that venous blood was satisfactory for transfusion, and that only blood from a donor of the same species as the recipient should be used. Reviews of the reported cases in which blood transfusion had been used therapeutically up to that time were made in the middle of the nineteenth century by C. H. Routh and by J. Soden; both were most optimistic about the benefits of blood transfusion and about its future place in medical practice. In their two series the patients who died did so in spite of transfusion, and not as a result of complications such as hæmolytic reactions. Dr. Verso suggested that the reason for the absence of fatal hæmolytic reactions was that the chance of their occurring was limited by the small number of patients involved, and even more by the small quantities of blood transfused. As experience accumulated, more and more complications were reported, and the earlier enthusiasm in the medical profession was not maintained, until, at the beginning of the twentieth century, the discoveries of Landsteiner allowed blood transfusion to take its proper place in medical practice.

R. W. GREVILLE (Victoria) said that it was interesting to hear of the scientific attitude of workers in the early nineteenth century. He wondered whether the lack of infections in the series of transfusions discussed was due to the bactericidal properties of fresh blood.

Dr. Verso, in reply, said that the early nineteenth century was, in fact, the period when the approach to medicine of the best people was extremely scientific. It was limited only by the techniques available and the body of knowledge which had gone before. The bactericidal powers of fresh blood would explain to a certain extent the freedom from infections but would not do so entirely. In spite of all precautions trouble still occasionally occurred. It would not explain the freedom from phlebitis.

J. P. MORRIS (Victoria) read a paper entitled "Modern Concepts of Blood Transfusion". He said that transfusion practice had developed rapidly since blood groups were discovered. Indications for blood transfusion now had a firm physiological basis, and the replacement of lost blood was the cornerstone of modern surgery. Modern methods of preservation gave a normal life span for stored erythrocytes, but arrest or alteration of metabolism might permit longer storage. The transfusion of platelets was partially successful, but the transfusion of leucocytes not at all so. Plasma fractionation permitted isolation of clotting, osmotic and disease-protecting proteins. Synthetic plasma volume expanders were useful when natural products were unprocurable. The extension of development of serology was to be expected, as blood groups were merely one aspect of genetic structure. They were of clinical importance only when corresponding antibodies existed or might develop, but they rendered adequate cross-typing obligatory in every transfusion. Transfusion equipment and techniques had become simpler and surer. Dr. Morris finally said that the importance of the unique concept of anonymous voluntary blood donation must be stressed.

W. R. PITNEY (Western Australia) said that it was necessary to look on blood which was supplied as a gift as a privilege and not as a right. Many people who were used to ordering whatever they wanted around a hospital did the same with blood, not realizing its special position.

Dr. Morris, in reply, said that he could not agree more. He then discussed a number of points dealing with the legal position of blood transfusion. He said that in cross-matching the clinician was legally obliged to perform the fullest possible range of tests in every case, and he must weigh the risk of omitting or shortening any of the tests against the risk of the delay occasioned by performing it. It was not for a technician to select the tests to be done or to vary the tests selected. The technician was responsible only for the correct performance and reporting of the tests; the final interpretation was for the clinician. If the latter interfered or demanded results prematurely, he did so at his own peril. Generally the law required a higher standard of care in elective than in emergency cases.

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## SECTION OF HISTORY OF MEDICINE AND SECTION OF NAVAL, MILITARY AND AIR FORCE MEDICINE AND SURGERY.

### Naval Surgery of the Eighteenth and Nineteenth Centuries.

A COMBINED MEETING of the Section of History of Medicine and the Section of Naval, Military and Air Force Medicine and Surgery was held to discuss naval surgery of the eighteenth and nineteenth centuries.

K. F. RUSSELL (Victoria) read a paper entitled "Naval Surgery of the Eighteenth and Nineteenth Centuries—A Talk Around Some Slides". He said that conditions were notoriously bad on naval ships in the eighteenth century. Quarters were cramped and overcrowded, the food was extremely poor and disease was rife. Scurvy and typhus were always present, and the morbidity and mortality rates were high. Surgeons did their best, but they were mostly ill-equipped to cope with the conditions prevailing. The mortality statistics vividly told their own story. It needed men like James Lind and Gilbert Blane to combat and defeat apathy, scurvy and typhus before the Navy was placed on a sound medical footing.

R. S. PARSONS (Tasmania), in opening the discussion, said that the Navy as such was largely composed of ratings who were "press-ganged" into the service. No proper uniforms were issued, and many of the crews were made up from the local gaol. It was of interest to note that the nickname of the Navy was "Andrew"; this was obtained from a notorious character, Lieutenant Andrew, who was in charge of the press gangs at Portsmouth. Other terms of "navalese" came from the old sailing ship days. Thus "son of a gun" was from children born aboard the ships of the line. Ratings were not allowed ashore, and wives, girl friends, etc., were allowed to come aboard when the ships were in harbour. The pregnant females sometimes gave birth to children whilst on board, and to do this they were delivered over the barrels of the guns; that was the origin of the term. Often naval captains had their own personal physician with them. Sir Gilbert Blane was one of those, and it was through him that there was a great deal of advance in naval medicine. Dr. Parsons said that medical officers of the Navy were very junior in status, and it was only recently that they had had the privilege of carrying the naval officer's sword. Even as recently as just before the 1914-1918 war, a medical officer did not have the executive cord on the cuff, and wore only straight rings. The naval hospitals were interesting in their history. Haslar was the oldest, then Plymouth and lastly Chatham, though the old hospital at Chatham used to be the Royal Marines' Infirmary. Haslar was the seat of naval medicine, and now had the Royal Navy Medical School attached. In the old days a small tramway used to bring the wounded from the ships, and patients were dispatched to the hospital on trams. One side of the hospital was for medical patients and the other side for surgical patients. The tramway ran through the hospital, and at the top was the church where the dead were taken. Plymouth was similar, though that hospital had been badly damaged by bombing in the last war. A fine new operating wing had just been completed.

COMMANDER R. M. COPLANS (New South Wales) said that lime juice was still issued in the Royal Navy and the Royal Australian Navy, and there was also an issue of pickles. At the Haslar Hospital there were sentry boxes on the walls to prevent naval rating patients from escaping. The vaults were excavated, and during the Second World War there was an emergency operating theatre with walls so thick that when a bomb was dropped on the hospital above, the operating team did not even hear the noise. Sheerness Dockyard was known as "Bluetown"; there the hulks were situated where the prostitutes waited for the sailors. In those days females were taken to sea. At the Battle of Copenhagen, a child was born shortly before the battle. The phrase "show a leg" arose from the custom of taking females to sea. When the crew were called in the morning, they had to show a leg; if the leg was hairy and belonged to a man, the owner would have to get up; if it was not hairy, it would belong to one of the women, and she could sleep in. The harsh discipline in the Navy in those days was probably no worse than that of the civil criminal code.

M. L. VERSO (Victoria) said that he was particularly interested in the career of Sir Gilbert Blane, and in the fact that Rolleston had given a good account of it in *The Journal of the Royal Naval Medical Services* about 1916. One of Blane's greatest services to naval medicine was that he was largely responsible for implementing Lind's ideas of the Navy. He also anticipated modern thought in that he did not look on citrus fruits as fundamental foodstuffs, but thought that they played a supplementary though very important role. In modern parlance he conceived them to be accessory food factors and thus anticipated the concept of vitamins.

## SECTION OF MEDICINE AND EXPERIMENTAL MEDICINE, SECTION OF NEUROLOGY, NEUROSURGERY AND PSYCHIATRY AND SECTION OF OTO-RHINO-LARYNGOLOGY.

### Vertigo.

A COMBINED MEETING of the Section of Medicine and Experimental Medicine, the Section of Neurology, Neurosurgery and Psychiatry and the Section of Oto-Rhino-Laryngology was held to discuss vertigo.

K. B. NOAD (New South Wales) read a paper entitled "Vertigo". He said that the subject of vertigo had been obscure until the researches of the past 25 years had thrown light on the functions of the labyrinth and cochlea. One of the commonest complaints of "dizziness" was due to anxiety and fatigue. Possibly by disturbance of tonic neck reflexes, a sensation of "floating" and uncertainty in walking was produced. Vascular disturbances were by far the commonest cause of vertigo. They might be functional, as in over-fatigue, debility, migraine and epilepsy, or organic, as in the various conditions associated with hypertensive arteriosclerosis and ischæmic heart disease. Virus infections might cause vertigo possibly by attacking peripheral or central vestibular neurons. That type of disorder differed from vestibular neuronitis described by Hallpike, which might be associated with oro-naso-pharyngeal sepsis. Allergy was also responsible for vertigo in some cases by producing œdema of receptor organs. Dr. Noad finally said that drugs had long been known to produce giddiness, particularly quinine and salicylates, and more recently streptomycin, which formerly had produced true vertigo; however, that was now fortunately rare.

A. S. DE B. COCKS (South Australia), in his paper, said that in the consideration of patients suffering from aural vertigo, care was necessary in taking the history and in understanding the sensations experienced by the patient to which he applied the term giddiness. It was equally necessary for medical practitioners to exercise care in the use of the word labyrinthitis, which should be used only when an inflammatory reaction affected the labyrinth. That was not the case in most patients suffering from Ménière's syndrome. The term Ménière's syndrome encompassed a number of clinical conditions in which vertigo was one of the principal symptoms. Ménière's disease was a true disease, in which hydrops of the labyrinth was a characteristic pathological change. Those affected usually suffered from a triad of symptoms, namely, vertigo, tinnitus and deafness. Patients whose condition resembled Ménière's disease in its clinical manifestations in some respects, but not in all, might be referred to as suffering from atypical Ménière's disease or Ménière's syndrome. Comparatively recent investigations had detached two clinical states from that miscellaneous group —namely, vestibular neuronitis and positional nystagmus of the benign paroxysmal type. A differential diagnosis between cerebello-pontine angle tumour, Ménière's disease, vestibular neuronitis and positional nystagmus of the benign paroxysmal type could be aided by the otologist. By consideration of the history and the application of postural, caloric and audiometric tests, including tests for the presence or absence of loudness recruitment, assistance in the diagnosis could usually be given.

Dr. Cocks went on to say that having made a diagnosis of true Ménière's disease, the practitioner was faced with the choice of a wide variety of treatments. In order to evaluate any particular mode of treatment, accurate diagnosis was essential, together with a recognition of the tendency of the disease to undergo long remissions. Medical treatment might consist of the restriction of water and salt intake, together with the prescription of vasodilators, hyoscine derivatives or antihistamines. The careful administration of streptomycin sulphate might suppress vestibular activity on both sides, without affecting hearing in suitable cases. Surgical measures in unilateral cases almost invariably resulted in loss of useful hearing in the ear operated on. Operations included the intratympanic introduction of streptomycin sulphate or the intralabyrinthine injection of alcohol. More major procedures included fenestration and ablation of the membranous labyrinth or the application of diathermy through that portal. Similar effects could be obtained by a disruption of the membranous labyrinth, access being obtained by reflecting the tympanic membrane and removing the stapes. The stapes was subsequently replaced. The principal criticism of destructive operations for Ménière's disease depended upon the known tendency of the disease to affect the opposite labyrinth, threatening the patient with complete loss of hearing. Garnett Passe's operation of stellate ganglionectomy offered a prospect of relief in either unilateral or bilateral cases, without incurring the risk of loss of hearing.

Dr. Cocks displayed a table showing the features of Ménière's disease, tumours of the cerebello-pontine angle, vestibular neuronitis and positional nystagmus of benign paroxysmal type. The table showed that vertigo was common to all four conditions, although its character was liable to vary from condition to condition, being as a rule paroxysmal in Ménière's disease and more persistent in vestibular neuronitis. The head position was of importance in positional nystagmus and not in the others. Caloric responses were usually abnormal in each of the conditions, and in positional nystagmus particularly might show directional preponderance. In the hearing tests, the principal differences between Ménière's disease and eighth nerve tumours lay in the presence of loudness recruitment in the former and its absence in the latter. Cochlear symptoms and signs did not occur in the two last-mentioned diseases.

J. GRANT (New South Wales) read a paper entitled "Vertigo".

ASHLEIGH DAVY (New South Wales) said that he wished to comment only on references to the work of Mr. Garnett Passe on vertigo. He had discussed the problem with Mr. Passe in 1952, and had seen Mr. Passe carry out a dorsal sympathectomy operation for Ménière's disease by the posterior approach. Mr. Passe thought that vasospasm of the internal auditory artery or branches was often responsible for Ménière's symptom complex. He thought that the vasospasm caused partial anoxæmia of the vestibular and cochlear apparatus, and regarded it as likely that resulting increased capillary permeability could be responsible for the endolymphatic hydrops often associated with Ménière's disease.

## SECTION OF MEDICINE AND EXPERIMENTAL MEDICINE AND SECTION OF OBSTETRICS AND GYNÆCOLOGY.

### Anuria.

A COMBINED MEETING of the Section of Medicine and Experimental Medicine and the Section of Obstetrics and Gynæcology was held to discuss anuria.

K. KIRKLAND (New South Wales) read a paper entitled "Anuria". He said that anuria, with which must be considered oliguria (to less than 400 millilitres per day), was a state of clinical emergency demanding immediate investigation and treatment. Essentially, the condition resulted from physiological failure of the renal unit, from three groups of causes, sometimes distinct but often interrelated. Circulatory inadequacy causing altered renal hæmodynamics might be considered as systemic or prerenal. Damage to the nephrons by influences selectively toxic or by anoxia resulted in acute renal failure. Obstructive or post-renal factors caused anuria when the secreted urine could not be cleared, and were rather of surgical import. Early assessment of the underlying causes in degree and duration should be attempted. If the patient had been handled from the beginning, information would be available regarding the fluid and electrolyte position. If not, and particularly when anuria had been established for some days, full examination was necessary, including X-ray examination, hæmoglobin estimation and hæmatocrit

estimation together with that of blood urea and creatinine. Fluid and electrolyte deficits must be calculated. Details of blood or fluid loss by hæmorrhage or vomiting should be sought, with information on the replacement that had been carried out and the drugs that had been administered. Hypotension and hypovolæmia due to sudden blood loss, shock and plasma loss following burns caused circulatory inadequacy. Secretion of urine as a rule ceased when the systolic blood pressure was below about 80 millimetres of mercury. Dehydration also contributed to circulatory insufficiency, and except when transient and easily reversible, was associated with electrolyte upset. Sweating and vomiting were the commonest causes. The debilitated patient would be more affected by those influences, and deterioration would be more rapid. If temporary faults in circulation and hydration, which led to renal decompression and anuria, were made good before there was any anatomical or structural damage to the nephrons by ischæmia, causing anoxia, function was quickly restored. It might be difficult to decide when such damage had occurred and some degree of renal deficiency had resulted. Sustained ischæmia would inevitably lead to tubular necrosis and acute renal failure. That syndrome was due importantly to renal anoxia and nephrotoxins. The latter resulted from intravascular hæmolysis due to mismatched transfusion or to the addition of large quantities of water to the circulation, as could occur in transurethral resection of the prostate gland. Septicæmia due to *Clostridium welchii* in cases of septic abortion was similarly nephrotoxic. Chemical poisons, such as bichloride of mercury, bismuth, lead and sulphonamide drugs, would cause the same damage. However, anuria and oliguria due to acute renal failure might occur without explanation, probably as the result of an unrecognized phase of hypotension associated with preexisting renal deficiency.

Dr. Kirkland went on to say that the underlying pathological basis was acute tubular necrosis. Oliver and others (1951) suggested two types of lesions in the tubule. Nephrotoxic agents appeared to cause widespread necrosis of the epithelial cells, while anoxia, in addition to irregular cellular necrosis, also caused disruption of the basement membrane. Bialestock (1957) had found that both lesions occurred in cases of cellular poisoning, and considered them to be associated in varying degree in all cases of acute tubular necrosis. Irregular distribution of damaged units was a constant feature. It had been noted that recovery was slow and might not be complete in necrosis caused by anoxia. The actual mechanism of anuria was not completely understood, but it was possible that, with such impairment of the integrity of the tubule, there was no division between the tubular and interstitial fluids. Reabsorption or back diffusion to the blood-stream could occur. From the practical point of view, the damage was reversible.

Dr. Kirkland then said that the implications of acute renal deficiency in relation to cellular and water metabolism must be appreciated before management of the patient during the oliguric stage was possible. Inevitably, products of protein metabolism, normally removed in the urine, would increase, and all were familiar with the high blood urea and non-protein nitrogen figures of that condition. The retention in itself was not serious. However, the degree of protein catabolism thus evidenced was an indication of associated breakdown and electrolyte upset of great importance. Accumulation of acid metabolites, such as phosphates and sulphates, took place with a general variation of the electrolyte pattern. Calcium, sodium and chloride levels were commonly diminished, while the potassium level in the plasma coincidently increased and was of malign significance. Water imbalance, either by deficits or by over-hydration, was almost inevitable.

Certain principles in management must be recognized. No treatment directed particularly to the damaged nephron would bring about urinary secretion or hasten the repair and recovery, which might take two to three weeks. Anuria or extreme oliguria for several weeks was compatible with life, so long as supervision was designed to maintain the internal environment in a state which was as near normal as possible and to prevent complications or treat such as might occur, as Welt had expressed it in 1955. In general, it should be possible to avoid death from causes attributable directly to renal failure. At the outset, existing deficits might safely be made good and management should include daily weighing. Drug and antibiotic therapy must be reviewed during the anuric phase. No substance with any toxic potential, such as streptomycin, normally excreted by the kidneys, might be given. At Sydney Hospital, when streptomycin had been given during oliguria, it was regarded as one indication for early external dialysis. Cases of eighth nerve damage of varying degree had occurred in their experience. Conservative treatment related to diet, control of fluid balance and supervision of serum electrolyte content. Protein catabolism, whether cellular or exogenous, must be reduced to a minimum. Protein breakdown would be reduced considerably if adequate caloric requirements were supplied from other sources. In practice, carbohydrates were most suitable, and 50% glucose solution might be slowly and continuously administered into one of the larger veins by an indwelling polyvinyl catheter. Merrill had suggested that one unit of crystalline insulin should be given for each three grammes of glucose. Androgen, in the form of testosterone propionate, was also protein-sparing, 50 milligrammes a day being given during the anuric and oliguric periods. Little or no protein should be included in the diet. Water balance was of basic importance and must be supervised meticulously, as over-hydration tended to occur. Merrill's experience suggested that an amount of 400 millilitres of fluid per day, added to that gained from the diet and endogenous sources, was adequate in anuria. In oliguria, fluid equal to the urinary output might be further added. Intake of food and fluid should be controlled by accurate weighing to ensure small daily losses of approximately 0·3 or 0·4 kilogram. Continuous observations on the plasma electrolyte pattern were required. The potassium content demanded particular attention, as early in renal failure it tended to rise to toxic and even lethal figures. Use of the flame photometer, in conjunction with the electrocardiogram, probably provided the most accurate information as to threatening intoxication with damage to smooth and cardiac muscle. Potassium should be avoided in the diet, and it had to be remembered that many fluids, such as milk, orange juice, grapefruit juice and pineapple juice given as a routine in hospital, contained that element. Exchange resins might be used to effect a reduction of high plasma figures. Resin must be used strictly in conjunction with electrolyte estimation, as calcium and sodium balance might be affected. Gastric suction and the use of cathartics had been suggested, but each appeared to add to the difficulties of maintaining fluid balance.

Hypocalcæmia and excess potassium were often associated, and suitable treatment was the intravenous administration of 100 millilitres of calcium gluconate solution. Sodium was a potassium antagonist, and rapid but temporary benefit was gained by the use of hypertonic saline solution or sodium bicarbonate or sodium lactate. Major sodium deficits should be made good. Acidosis, which was largely a compensatory reaction, would be reduced with restoration of electrolyte balance, a sodium deficiency often being related. More radical measures in the management of anuria included exchange transfusions and dialysis. Exchange transfusion replaced four to six litres of a patient's blood by an equivalent amount from appropriate donors. It was interesting that despite general electrolyte improvement, the blood urea level tended to rise for some time after exchange transfusion. The procedure was not without problems and disturbing features.

Dr. Kirkland went on to say that internal dialysis might be performed by peritoneal lavage. That method of exchange was beset with many difficulties, and in a period of 12 or 15 hours achieved far less than did external dialysis in a much shorter time. External dialysis was performed by a so-called artificial kidney, of which there were several types in use. The principle was the same in each, and aimed at the removal of toxic substances

from the blood by diffusion through "Cellophane", or in reverse, the addition to the blood of substances to correct deficits. The dialysis did not influence renal damage, but improved conditions resulting from renal failure. The need for the artificial kidney in anuria due to acute renal failure was debatable, but the benefit was without question. Many patients would recover with more conservative treatment, but their management would impose heavy strains on the nursing and medical staffs. Nausea and vomiting would compel parenteral administration of fluid, food and electrolytes. In contrast, after dialysis, the patient was more cooperative in every way. Ambulation could be allowed, while the relief from nausea and vomiting made three meals a day possible without the use of indwelling tubes. Obstructive or post-renal anuria usually required surgical interference for relief. The obstruction must involve both kidneys or a solitary functioning kidney. Calculous anuria resulted most often from high obstruction of the urinary outflow from a solitary kidney. Occasionally an aberrant vessel would achieve the same effect. In the former case, diagnosis should be made by radiological examination, and in the latter a history of sudden onset, anuria and inability to fill the renal pelvis from below should lead to a diagnosis. Operative relief was indicated in both cases. Reflex anuria was far less important, and most often occurred by reflex inhibition of renal function following extreme pain in the associated kidney. Relief of pain by anodynes should suffice to restore urinary flow. In pelvic surgery, both ureters or the ureter draining a solitary kidney might be ligated. Ideally, deligation should be carried out as soon as possible, Reisman and other (1957), reporting on a small series of cases, suggested that most could be achieved by a combined effort. The surgeon or gynæcologist worked above to perform deligation, while the urologist working below attempted to catheterize the occluded ureter. Malignant disease about the pelvis or bladder base might obstruct both ureters in the terminal phase. The condition of acute renal failure associated with toxic necrosis of the tubules appeared to result from sustained pre-renal disease and selectively toxic renal influences, rather than from post-renal obstruction. In the latter case, recovery with restoration of renal function generally followed removal of the obstruction.

F. A. BELLINGHAM (New South Wales) read a paper entitled "Anuria". He said that from the obstetrician's viewpoint, the problem of anuria was a very real one. The anuria was usually relative, and resulted only in varying degrees of extreme oliguria. While it was infrequent, the physician's aid must always be sought; nevertheless, the basic principles should be understood by the obstetrician himself. Perhaps the most surprising clinical feature was how well the patient looked in the first few days of anuria. Once the condition was recognized, the phases were twofold—the anuric phase with the polyuric phase to follow. The corner-stone of management lay in the fact that the renal lesion was reversible, and, provided that the patient could be tided over for long enough, recovery would take place. Broadly, the treatment consisted of maintaining the fluid and electrolyte balance and avoiding the great danger of over-enthusiastic therapy —particularly that which might result in pulmonary œdema and death. Pathologically, there might be bilateral symmetrical cortical necrosis of the kidneys or acute tubular nephrosis (lower nephron nephrosis). There was a disintegration of the basement membrane, which, if not too severe, was reversible within two weeks or so, with regeneration of the tubular epithelial cells and marked diuresis. There was also interstitial œdema resulting in pale, swollen kidneys with a bulging cortex. The essential ætiological factor was renal ischæmia due to shock from any cause, when the kidney was one of the first organs to sacrifice a major part of its blood supply. In obstetric practice that was usually accidental hæmorrhage, incompatible transfusion or septic abortion (especially when associated with *Clostridium welchii*). Eclampsia was another possible condition. Although the kidney withstood ischæmia well, and probably three hours of complete renal artery occlusion was necessary to produce irreversible change and death of the kidney, severe oliguria resulted in direct ratio to the duration of the hypotension. The syndrome of anuric uræmia was due to disturbances of the water balance, the mineral balance and the nitrogen balance.

Dr. Bellingham went on to say that the water balance must be carefully watched and recorded. During the anuric phase particularly, they must beware of congestive cardiac failure due to overloading of the circulation, with the development of pulmonary œdema. Sodium chloride solution in excess was especially liable to cause that. During the polyuric phase, tremendous amounts of fluid were lost, and as much as six litres might have to be administered daily. As well as the measured fluid loss, there was the insensible loss from lungs and skin—often necessitating an additional half to one litre in the hot Australian climate. Daily determination of the serum electrolyte content was important. Intoxication due to retention of potassium was by far the most important complication of electrolyte imbalance. Since potassium could not be excreted by the kidney, there was a tendency for potassium liberated by cell destruction, by the absorption of accumulations of blood or by products of tissue breakdown to reach toxic levels in the extracellular fluid. The normal potassium range was 3·9 to 5·6 milliequivalents per litre. As the intake must contain no potassium, it should be noted that orange juice and milk contained a considerable amount. High levels of potassium were indicated by disturbances of nervous and myocardial conduction, and the electrocardiogram would reflect those in the conducting system of the heart. Clinical examination might reveal faint heart sounds, falling blood pressure, bradycardia or arrhythmia. The attendant should closely watch for an absence of deep tendon reflexes, a sensation of tingling or a numbness of the extremities. Referring to the plasma sodium level, Dr. Bellingham said that the normal figure was 140 milliequivalents per litre. Sodium was mainly lost in sweat or by diarrhœa, and much less in the the vomitus. No sodium ingestion was required when there were no obvious losses, but actual analysis of the fluid lost with intravenous replacement was the ideal. Over-enthusiastic attempts to correct hyponatræmia might well result in congestive cardiac failure. The normal range for chloride was 95 to 106 milliequivalents per litre. The chloride ion was probably significant only for its role in acid-base balance. Its biological effects depended on whether it was accompanied by sodium or potassium. Calcium loss was usually made up from stores in the bone reservoir. If twitchings or convulsions developed, 100 millilitres of 10% calcium gluconate solution given over the 24-hour period in the intravenous glucose solution were sometimes beneficial. Phosphate-containing food or fluid should not be given, and phosphate retention was guarded against when an attempt was made to decrease protein catabolism.

Discussing treatment, Dr. Bellingham said that in oliguria due to renal failure, the use of diuretics was avoided; they were useless and could not be excreted in the urine, and also they might reach toxic levels in the blood. When obvious clinical signs of dehydration were present, there was a water deficit of approximately 20%. That must be replaced, particularly during the phase of polyuria. It should be remembered that normal body water constituted 45% of body weight in the female. During the anuric phase, the danger of pulmonary œdema must be constantly remembered, and fluid intake limited to urine loss *plus* approximately one litre for the insensible loss in the 24 hours. Loss of water by vomiting or diarrhœa must also be taken into account. To prevent over-hydration, an accurate measurement of daily weight provided a clinical check. Frequent determinations of plasma electrolytes were important, and replacement therapy should be given, especially during the polyuric phase. During the anuric phase, over-enthusiastic attempts to correct minor degrees of sodium, potassium and chloride deficiency must be resisted. Particularly during the anuric phase, products of protein breakdown were largely responsible for the clinical picture, and the object must be to administer non-protein Calories as fat and glucose. In the absence of excessive vomiting, the peanut oil régime (Bull) had a place in therapy, at least for a time. A mixture of glucose (400 grammes), peanut oil (100

grammes), acacia (*quantum sufficit*), and water (to one litre) was administered by a fine polythene tube into the stomach over the 24 hours. The vomitus was filtered and returned also. When that became impossible, recourse must be had to intravenous therapy—preferably through a long polythene catheter—secured into a large vein. If other caloric sources were inadequate, body protein would be broken down, and in the anuric patient the nitrogenous residue could be excreted, with a resultant increase in serum non-protein nitrogen concentration. Acid metabolites would also accumulate, especially potassium, a cation with lethal effects in anuria. To provide non-protein Calories, glucose (100 grammes per day) was given; that would decrease protein catabolism and also prevent ketosis. Fat provided twice as many Calories per unit of weight as glucose. The drawback was that any fat emulsion was poorly tolerated by the gastro-intestinal tract, and might produce vomiting and diarrhœa with water and electrolyte loss. Dr. Bellingham said that if antibiotics were given prophylactically, care must be exercised because of the danger of superinfection; but the appropriate ones must be used vigorously when necessary. The anuric patient was debilitated and susceptible to infection, which greatly increased the catabolism of protein with its undesirable sequelæ. The picture was sometimes complicated, because leucocytosis in the absence of infection was often found in those patients. Also, the indwelling polythene catheter seemed to predispose the patient to *Staphylococcus albus* infection.

Dr. Bellingham then discussed various therapeutic aids. He said that he had not used the artificial kidney or peritoneal dialysis. Decapsulation of the kidney had been discarded. ACTH and cortisone had been tried without much success. Cation exchange resins had been employed occasionally to eliminate potassium via the gastro-intestinal tract; it had to be remembered that large quantities of sodium were also lost. Androgens had been shown experimentally to decrease protein metabolism and to cause hypertrophy of the epithelial cells of the renal tubule; therefore testosterone propionate had been administered intramuscularly. Its use should not be extended beyond 10 days, because there was a tendency for its action to be reversed after that. Vitamins should be given daily during the illness. The Miller-Abbott tube had been found of great benefit in the presence of gastric distension or intestinal ileus. For nausea and vomiting, chlorpromazine had given good results in a dosage of 15 milligrammes three times a day by intramuscular injection. Paraldehyde was the best sedative. If barbiturates were ordered, "Seconal" or "Amytal", which were metabolized by the liver, should be used rather than phenobarbital which was excreted by the kidneys.

Turning to the question of complications, Dr. Bellingham first mentioned anæmia. He said that with complete bed rest, the anuric patient tolerated well a relatively severe anæmia. If symptoms of circulatory embarrassment due to the anæmia developed, or if the hæmoglobin value was below 7·5 grammes *per centum*, small transfusions of packed cells should be given. Once again, the danger of increasing the blood volume to such an extent as to precipitate pulmonary œdema had to be borne in mind. Referring to cardiac complications, Dr. Bellingham said that pulmonary œdema and congestiv heart failure were usually the results of the injudicious use of fluids, especially sodium chloride, to an excess of which such patients were particularly sensitive. Morphine in small doses would often allay anxiety and bring about great relief in acute pulmonary œdema. Digitalis should be used, as digoxin, in congestive cardiac failure; but the patients appeared particularly susceptible to the arrhythmias induced by that therapy. Its prophylactic use was of doubtful value. Depressor drugs might be indicated if there was a marked elevation of the diastolic pressure. Retention of potassium was the most dangerous complication of the anuric phase, and a rapidly rising serum potassium level with a falling sodium level was a serious warning. The use of glucose infusions minimized that complication. The electrolyte determinations would give warning and would be ratified by the electrocardiogram. The effects were seen mainly in the nervous and myocardial conducting systems, and the immediate cause of death was disturbance of the cardiac conducting system. The electrocardiogram began to record changes at about 5·5 milliequivalents per litre. In treatment, prophylaxis must come first. The Miller-Abbott tube helped to drain the small intestine, and spontaneous diarrhœa might cause potassium loss. If cathartics were used for the same purpose, the water and sodium losses which occurred concomitantly must be made good. Cation exchange resins had been used in some cases. The calcium ion was a physiological antagonist to potassium, and calcium gluconate infusion might be useful. Insulin might be ordered in 10 unit doses (with two grammes of glucose to cover each unit if the patient was not on glucose or the peanut oil régime). Sodium was another powerful potassium antagonist, and would produce a striking improvement in the electrocardiographic picture; 200 millilitres of 5% saline or sodium bicarbonate in 5% dextrose solution might be given intravenously.

Discussing the diuretic phase, Dr. Bellingham said that when the renal lesion was reversed, after a variable number of days, diuresis began; but 25% of deaths recorded in the literature occurred during the diuretic phase from infection, bronchopneumonia, pulmonary embolus or pulmonary œdema. Severe losses of water and electrolytes must be made good, but the patient must not be over-hydrated, since some of the urine lost might contain water and sodium which were already in excess. On psychological grounds, Calorie intake was best by mouth, and when renal function was improving there was no need to restrict protein simply because of an elevated blood urea nitrogen level.

Dr. Bellingham finally summarized the cases of anuria at the Women's Hospital, Crown Street, Sydney, in 1955, and said that there had not been a single case of anuria at that hospital during 1956 and 1957, although there had been over 12,000 births.

W. B. MACDONALD (Victoria), in opening the discussion, said that he had only one criticism—that there were not more people in the audience. Unfortunately, those who had attended were probably those already interested in the subject under discussion, not those who could profit most from learning or understanding the principles of the management of anuric patients. Many such patients still died, and the deaths of some of them were accelerated by the injudicious and uncritical use of diuretics such as potassium citrate, sodium sulphate or water. In the anuric patient, most of what went in stayed in, and created problems of potassium and water intoxication, acidosis and œdema. The reason for such errors in treatment was a failure to understand the disordered physiology of the condition. The speakers had stated the principles clearly. Dr. Macdonald went on to say that whereas Dr. Bellingham's experience had made him apprehensive of potassium intoxication, he himself was more frightened of water. Even when the insensible losses were calculated as accurately as possible, there was still a tendency to forget or disregard water of oxidation. On a daily basis, that might not amount to much; but after a week's anuria it could cause the accumulation of over a litre of excess water in the body. Thus waterlogging of cells and convulsions could occur without the danger being foreseen. Dr. Macdonald said that he did not like the inclusion of pre-renal anuria in the classification. Certainly dehydrated patients were oliguric; but in most cases it was a physiological response, and the kidneys were doing an excellent job in excreting a highly concentrated urine. If circulatory failure later supervened and renal ischæmia occurred, the initial effect might be polyuria. If the final result of ischæmia was anuria, it was most definitely renal and not pre-renal anuria.

Referring to the management of anuric patients, Dr. Macdonald said that he completely agreed with the principles enunciated by the speakers. The cornerstone was careful conservative treatment, with as accurate replacement of losses as possible. The kidney could not be bullied or hurried along. In many cases spontaneous recovery occurred, but many patients required dialysis.

There was no doubt that external dialysis with an artificial kidney was the best procedure. Every major centre in Australia should possess an artificial kidney. Anuric patients were not common, but they ran a grave risk of dying without dialysis, and most were too ill to be transported far. The apparatus was expensive, and a well-trained team was required to operate it. Such a team would need to consist of medical and nursing personnel and biochemists, whilst a pharmacist and an engineer might be required on occasions. It would need to be well drilled for an emergency. An analogy could be made with a fire-fighting team, which, if untrained, would be useless in the management of heavy and intricate fire-fighting apparatus. The fire would run its course of destruction before the first drop of water left the hoses. With that proviso, there was a need for an artificial kidney in every major centre in Australia.

P. DORNEY (Tasmania) said that the term lower nephron nephrosis should never be used. The stress laid on the importance of the obstetrician's knowing all about anuria was important, because often he must be the first to recognize the onset, at a very early stage, when it could easily be missed. The nephrotoxic cases had a different ætiology, as had the pre-renal and post-renal cases, and a different pathology, although in some the end result was the same. But there was a common factor in most of the renal cases, hypertensive shock, in which generalized spasm of the smaller arterioles affected the afferent vessel to the glomerulus, with resulting ischæmia of the glomerulus. As that was the vessel supplying the tubules as well, it was obvious that any oxygen available would be used up by the glomerulus and there would be very little left for the tubules. If that process went on for long, there would be tubular damage with necrosis and rupture of the basement membrane. Just as obviously that was therefore a secondary phenomenon; but it was of extreme importance in the diuretic phase when the tubules acted purely as conducting tubes without any power of reabsorption and electrolytes were lost purely as a function of volume of fluid passed. Dr. Dorney said that there were two types of renal anuria—(i) spasm of afferent vessel with primary hypertension, and (ii) hypotension with normal vessels and low filtration pressure. The type under discussion was the spasm type, with a resulting secondary hypotension which, in fact, had no relation to the anuria. That was shown by raising the blood pressure to normal—for example, in injury cases—with a blood transfusion, but there was no corresponding diuresis. The reverse of that was also true if ganglion-blocking agents were used.

Dr. Dorney then stressed the fact that reversibility was the predominant practical thought. He said that in the management, daily weighing of the patient was of far more importance than any other single observation, as it was known that the patient would have a very good chance of recovery if she was not over-hydrated. That was a simplification of the problem, but it was none the less a very important factor in recovery. Treatment had been fully and adequately covered, but there were a few observations on management that he wished to discuss. He disagreed that the flame photometer provided the most accurate information of hyperpotassæmia; the electrocardiogram was more accurate and quicker. He suggested that gastric suction was unnecessary in most cases, and that cathartics were unquestionably contraindicated. Exchange transfusions presented great problems—for example, a rise in the blood urea level—but dialysis could be life-saving, although it was rarely necessary. A cystoscopic examination was essential in all cases except those with obvious ætiology—for example, incompatible blood transfusion or shock from trauma unassociated with abdominal injury—to determine whether ureteral obstruction was present, especially in post-operative or malignant cases. Obviously urine from catheterization of only one ureter disposed of the presence of bilateral renal anuria. Retrograde catheterization was important. Bull's regime with fat was useless, distressing and nauseating, and caused clinical deterioration due to vomiting. A 50% glucose solution might produce thrombosis unless given in a particular way. Intestinal ileus of electrolyte type did not occur.

F. J. BROWNE (New South Wales), from the chair, said that there should be an artificial kidney with a team trained to use it in every capital city in Australia and New Zealand, and every patient should be moved to the unit as soon as anuria became apparent. Most patients recovered without the use of any clearing method, but there was no way of telling whether the patient would do well or not, and it was unfair to the kidney unit to transfer patients only when medical measures had failed. At best, their nursing entailed a great strain on the staff of maternity hospitals and few had the necessary facilities for daily biochemical and cardiographic investigations.

Dr. Kirkland, in reply, again emphasized the dangers of over-hydration.

Dr. Bellingham, in reply, said that the term lower nephron nephrosis had now been discarded. With regard to the use of antibiotics, sensitivity tests should be performed early, and the broad-spectrum antibiotics should be used first. "Chloromycetin" was the most favoured. Dr. Bellingham agreed with the principle of transferring patients to a hospital which had an artificial kidney and a trained unit.

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## SECTION OF MEDICINE AND EXPERIMENTAL MEDICINE, SECTION OF ORTHOPÆDICS AND SECTION OF REHABILITATION AND PHYSICAL MEDICINE.

### Rheumatoid Arthritis.

A COMBINED MEETING of the Section of Medicine and Experimental Medicine, the Section of Orthopædics and the Section of Rehabilitation and Physical Medicine was held to discuss the subject of rheumatoid arthritis.

#### *Problems in Management.*

S. NELSON (New South Wales) read a paper entitled "Rheumatoid Arthritis—Problems in Management". He said that rheumatoid arthritis was a common disease presenting difficult clinical problems in diagnosis and management; the cause remained unknown and the treatment was largely empirical. The mode of action of many of the therapeutic agents was not understood, and the side effects of many of them were dangerous. Many diagnostic difficulties might be avoided by careful history taking, and by a sound knowledge of the natural history of rheumatoid arthritis and related diseases. However, some arose from the close resemblance between true rheumatoid arthritis and the various collagen diseases. The painful shoulder (pericapsulitis) and the shoulder-hand syndrome were sometimes confused with rheumatoid arthritis, but rheumatoid arthritis rarely, if ever, presented as a unilateral shoulder lesion. Carcinoma of the lung might present without the detection of any abnormality on clinical examination of the chest, but with a clinical picture closely mimicking rheumatoid arthritis. Gout must be kept in mind, as it might occur in the hands, wrists or knees and did not always attack the first tarso-metatarsal joint. Scleroderma, disseminated *lupus erythematosus* and *polyarteritis nodosa* might be confused with rheumatoid arthritis, but a careful search for involvement of other systems or for some of the characteristic changes in the skin might differentiate them. There was some controversy as to the specific value of the L.E. phenomenon in the blood in *lupus erythematosus* and the problem was not yet settled.

Dr. Nelson went on to say that the main therapeutic methods in current use were, first of all, general and symptomatic treatment—rest, analgesics, hypnotics, etc.—and the exhibition of chemotherapeutic agents thought to have some anti-rheumatic or suppressive value, such as salicylates, gold, "Butazolidin", steroids, synthetic antimalarials. Anti-infective agents which in his opinion were of doubtful value, included sulphonamides and antibiotics. Local anti-inflammatory treatment by intra-

articular injections of cortisone was a valuable adjunct to the treatment. Various physical methods of treatment were useful, and orthopædic procedures were usually undertaken in the chronic inactive stage to rectify deformities. The choice of treatment in a severe, rapidly progressive case of rheumatoid arthritis was always a problem. In most cases rheumatoid arthritis was mild and ran a benign course, but there was a group in which the disease pursued a rapid and relentless course to severe and irreversible joint damage. That was the group in which every form of therapeutic agent seemed to fail. The physician was tempted to use excessive doses of steroids in an attempt to suppress the disease and might thereby endanger the life of the patient. Sometimes the distribution of the joint lesions, particularly in the hands of highly skilled workers or in the hip joints, presented a problem in its own right. Associated with the rheumatoid arthritis there might be some other factor, such as age, peptic ulceration, diabetes, tuberculosis, hypertension, heart disease, vestibular disease or other locomotor diseases such as hemiplegia or fractures, which would make the choice of treatment and the management of the patient more difficult. There were some factors associated with the patient apart from the disease, particularly the type of person who had a low pain threshold, or who would not cooperate, or who was unduly dependent. In some cases a combination of unsuitable occupation and a poor educational standard complicated the problem of rehabilitation. However, the main problems in that condition had to do with the side effects of therapy. Every method of treatment used had some catch. Salicylates gave rise to gastric intolerance, to sensitivity of the vestibular and cochlear mechanism, in some case to acidosis and, very rarely, to sensitivity. The toxic effects of gold were well known, and included renal damage, neutropenia, thrombocytopenia, exfoliative dermatitis and occasionally liver damage. When "Butazolidin" was first introduced, it was used in large doses, and casualties were not slow in appearing. The accepted method of treatment was now with a low maintenance dosage of 200 to 300 milligrammes a day and the side effects were not so dangerous, but they did occur. They included salt retention and increased blood volume causing œdema and cardiac embarrassment in some cases, vertigo, especially in the elderly, gastric intolerance—dyspepsia, hæmatemesis, melæna and sometimes diarrhœa—and the most feared neutropenia, agranulocytosis and occasionally some interference with red cell maturation. Corticosteroids caused many side effects which had been well publicized; the gain of weight, the electrolyte disturbance, the aggravation of *diabetes mellitus* and osteoporosois were all metabolic effects, hypertension might arise, peptic ulceration and its complications (hæmorrhage and perforation) might be seen occasionally, and loss of resistance to bacterial infection, especially tuberculous infections, was well known. Less well known was the masking of inflammatory reactions, which might make the diagnosis of some conditions very difficult.

Dr. Nelson then reported in detail his own experience with 39 cases of active rheumatoid arthritis, in which the diagnosis conformed to the criteria laid down by the American Rheumatism Association in 1957. He said that the decision to use steroids was taken after the patients' failure to respond adequately to other therapeutic agents. There were one case in Stage I, 18 cases in Stage II, 19 cases in Stage III and one case in Stage IV, according to Steinbrocker's classifications. There were 27 cases in Class II, 11 cases in Class III and one case in Class IV. Five patients showed a Grade I response to treatment, 23 a Grade II response, seven a Grade III response and four a Grade IV response. In the cases treated prfor to 1955, cortisone was the steroid in use. In the later cases prednisone was the steroid of choice. The concurrent administration of salicylate was routine; it was given in the form of aspirin in full tolerated doses. The average dose of cortisone was 50 to 75 milligrammes a day, and the average dose of prednisone was 10 to 15 milligrammes a day.

There were four deaths in the series, one of which was from myocardial infarction and was considered independent of the treatment. The other three deaths were related to the steroid administration. Three other patients in the series had hæmatemesis, one slight, the other more serious.

Dr. Nelson said in conclusion that the response to steroids was usually better in less severe cases, whereas in his series the choice of steroid therapy had been made after failure to achieve adequate response to other measures. When the condition was very active and progressive, the benefits of therapy were likely to be less dramatic. When that state was coupled with an unsatisfactory hospital situation, making it almost impossible to secure a bed for any length of time, and even then to secure in hospital a satisfactory programme of conservative treatment, steroid therapy was the more valuable. However, even in carefully observed cases there would be an increase in morbidity rate. The expected benefits must therefore be weighed against the possible dangers in making the decision to treat the patient with steroids; but one had also to consider the ravages of uncontrolled rheumatoid disease when considering the complications of treatment.

MICHAEL KELLY (Victoria), in opening the discussion, said that Dr. Nelson had presented a message which they should remember. The real gist of his review of the treatment of arthritis was that they should study the natural history of chronic polyarthritis. Arthritis had become such a dreaded word to their patients that it carried with it a suggestion that a wheel-chair was inevitable. Most lay people and even many doctors thought of polyarthritis in the same way as they thought of cancer or progressive muscular atrophy. The suggestion was that the prognosis was inevitably bad and that the patient should be warned about that; but the point was whether the prognosis really was bad, even in an appreciable proportion of cases of chronic polyarthritis. Dr. Kelly thought it was not. He said that polyarthritis was a chronic disease, but that did not mean that the disease was going to persist in each individual joint. There were strange rhythms about the course of the disease which were not yet properly understood. One feature was that the disease spread from joint to joint, but as it appeared in a new joint it became quiescent in the old one. They did not know what it was that caused so many joints to recover, and so they seldom saw that feature emphasized in any of the writings on the subject. Dr. Nelson had had wide experience of that disease over a large number of years, and the longer the experience, the less gloomy the view one took of the outlook. Dr. Kelly said that nearly every day he saw patients whom he had not seen for six or seven years in whom many joints had appeared to be disorganized and the prognosis had appeared to be inevitably bad. It was surprising and encouraging to see how the disease in those joints became quiescent and the patient was left with a reasonable amount of painless movement and a functioning joint. In the majority of cases drug treatment did not alter the course of the disease. Phenylbutazone was suitable or helpful in perhaps one in three cases, and it could not be given to the old or to those with cardio-vascular or alimentary disorders. Cortisone and its derivatives were on the way out. They should give their patients aspirin or an inexpensive placebo and concentrate on the prevention of deformity. Dr. Kelly then posed the question how deformities occurred. He said that there again he referred to Dr. Nelson and to Dr. Law, who were to speak on the local treatment of joint disease. It used to be thought that because polyarthritis was a generalized disease, little could be done by studying its manifestations in each individual joint. The opposite was the case. The mechanism of deformity in each joint was different, and the special measures which had to be taken to prevent it were different in relation to each joint. Every patient feared that she would not be able to walk and that she would would not be able to use her hands. Her instinct was true. Those were the dreaded sequels of chronic polyarthritis. The patient should be told from the beginning that both faculties could be preserved. Walking depended almost entirely on the knees. The use of the hands

depended less on the fingers than on the wrists. If a flexion deformity of the knees occurred the patient would not walk, and a flexion deformity could be prevented by persistent quadriceps drill and the avoidance of low armchairs. A dropped wrist was the first step to crippling of the fingers. It was difficult to prevent, because the wrists normally were flexed during sleep. Though arthritis was a chronic disease, its most difficult feature was the acute attacks which might occur in any joint. It was those attacks which had given it its reputation of being a painful disease. It was not, in fact, as painful as report would suggest, but the acute attacks, especially in the knees and wrists, were extremely painful. They were particularly likely to lead to deformity, because the patient would sit or lie for days afraid to move his arm if the wrist was painful, afraid to move his leg if the knee was painful and swollen. It was in those attacks that immobilization was necessary. The wrist should be immobilized in plaster and the fingers left free, and the patient should use her hand. A cylindrical case or a caliper should be applied to the knee and the patient should walk. Dr. Kelly went on to say that one of the commonest causes of a flexion deformity of the knee was intercurrent disease which put the arthritic patient to bed. Every week he saw such a patient who went to bed for an operation or an attack of pneumonia or any other reason. If an arthritic patient went to bed, his muscles wasted away and his quadriceps became weak. His wrists were continuously flexed and his arm was held to his side. Even if the sin was not committed of putting a pillow under his knees, the knees were flexed most of the time when he was lying in bed, and so those who had the care of arthritic patients should watch that. The deformity could be prevented by the adoption of a few simple rules. Dr. Kelly said that he wished to refer briefly to the effects of cortisone and its derivatives. He said that they should all heed Dr. Nelson's warning about the general effects of those drugs. At the Australasian Medical Congress held in Sydney in 1955, he himself had mentioned some of the dangers of cortisone. Then the delta derivatives appeared, and it was hoped that they would prove less dangerous. His experience, however, had shown that prednisone and prednisolone were equally as toxic as cortisone itself. Reports from all over the world spoke of the high death rate among patients who were taking those drugs. He believed that many of the deaths that occurred were incorrectly attributed to something other than the steroid treatment which was in reality the cause. Dr. Kelly gave an example, the case of a man, aged 40 years, who had been treated privately for two years with prednisone. He was admitted to a teaching hospital when the drug finally failed to relieve his polyarthritis. He had two epileptic fits, then he became extremely wasted and developed huge bed sores. A number of abscesses appeared and he finally died. An X-ray examination shortly before his death revealed collapse of a thoracic vertebra. Dr. Kelly said that he had studied that man's hospital records for medico-legal purposes, and had found no mention of prednisone or the withdrawal of prednisone as a contribution to his death. The mortality rate which Dr. Nelson mentioned was a serious thing. The eight deaths out of 39 cases reported by Dr. Bunim were still more serious. Hemiplegias and coronary occlusions occurred in those patients in greater proportions than in the general population. In addition, there were reports of deaths of patients treated for asthma or skin disorders with the steroids. Dr. Kelly believed that the time had come for an agonizing reappraisal of those drugs. He said that there was too great a tendency for practitioners to give patients a course of treatment without thought of the expense to the patient or of the possibility of the continuation of treatment. He could say that he had seldom prescribed prednisone for a patient without regretting it. He understood that a fluorinated derivative of prednisolone, which was said to possess all the advantages and none of the disadvantages of prednisolone, was shortly to be introduced into Australia. It would be very expensive, even though it was sold in one-milligramme tablets. After the tragic failure of cortisone and then of prednisone and the disappointments which had resulted from their use, he thought they should be warned. Any new cortisone derivatives should not be used until they had been well tried in research institutions.

NAOMI WING (New South Wales) spoke about "Chloroquine" therapy in rheumatoid arthritis. She said that it was a pity that time did not permit Dr. Nelson to mention the most modern addition to the therapeutic measures, namely, antimalarials. Duthie of Edinburgh told them that in the analysis of their cases of rheumatoid arthritis over a period of eight years they had found three grades of response to treatment. The first category comprised patients who responded to any form of treatment (25%). The second category comprised those who grumbled along and never made a satisfactory response to any form of therapy (65%). The third category comprised those who became crippled in spite of all treatment (10%). In the two last-mentioned groups, "Chloroquine" produced very beneficial results. In the clinic at the Royal South Sydney Hospital, there were many patients who had been attending for over 15 years and some with a history of up to 25 years' duration. In spite of all treatment, they had never made a satisfactory response and belonged to the second group. They had been given "Chloroquine" with excellent improvement, both subjective and objective. Discussing the dosage, Dr. Wing said they had begun with "Nivaquine" in a dose of 100 milligrammes once a day, increased to 200 milligrammes three times a day until the erythrocyte sedimentation rate reached a satisfactory level. When that had been achieved, the patient was given a maintenance dose of 100 to 200 milligrammes per day for an indefinite period. There had been no serious side effects when the drug was stopped and started as there were with the hormones. The side effects of interest were blonding of the hair, loss of weight, nausea, giddiness, and some gastro-intestinal symptoms, and light sensitivity on exposed surfaces. All those complications could be overcome by careful management. Dr. Wing said in conclusion that it was the most rewarding and safest method of treatment they had used, and the mode of its action still remained to be determined.

MAURICE JOSEPH (New South Wales) made a plea for X-ray examination of the chest of rheumatoid arthritis patients before steroid therapy was begun.

### *The Surgery of Rheumatoid Arthritis.*

W. B. LAW (Tasmania) read a paper entitled "Some Aspects of the Surgery of Rheumatoid Arthritis". He said that often before a surgeon was called to see the patient, the physician in charge might institute splintage to prevent deformity. In the upper limb, the important joints were first, the shoulder, which required abduction by a pillow folded into the axilla, and secondly, the wrist, which required a plaster or metal cock-up splint, which allowed finger freedom at the metacarpo-phalangeal joints as well as producing dorsiflexion of wrist. In the lower limb, the knee required a back splint to prevent flexion deformity, and the ankle required a plaster splint to keep the foot at right angles to the tibia. Dr. Law then described measures to arrest local arthritic processes. The first he mentioned was joint lavage and the second arthrotomy. He said that both those measures referred chiefly to the knee, in which removal of contents was indicated if the joint remained hot and painful in spite of rest. The third measure consisted of intraarticular injections. The popular material at present was hydrocortisone (25 milligrammes per cubic centimetre). The fourth measure was synovectomy, which was commonly performed in the knee. It removed a boggy synovium, which was a mechanical bar to movement and also the source of recurrent effusions. If synovectomy was contemplated, the articular surface must not have degenerated extensively.

Dr. Law then discussed the correction of established deformity, which he said could be effected by manipulation or by bone operations. Manipulation was commonly required for the knee and ankle, but was contraindicated in the case of fingers. Fracture of the femur and fat

embolism were unpleasant complications. Dr. Law said that reconstructive procedures were arthrodesis and arthroplasty. In his experience the wrist and knee commonly required arthrodesis. In the case of the wrist, excision of the lower end of the ulna preserved rotary movements in the arthrodesed wrist. Knee arthrodesis was quickly and efficiently effected by the use of the Charnley compression clamp. The result of arthroplasty of the hip was unpredictable. Excision of the head and neck did not produce gross instability in all cases. In bilateral stiff hips, a displacement osteotomy on one side and an arthroplasty on the other side were a good combination. The osteotomy did not produce movement for years in many cases, but very often the joint space reformed.

Discussing the time for operation, Dr. Law said that it was not always necessary to defer surgery until the process was "burnt out". When activity or a "flare-up" of the arthritic process was on the wane, some procedures might be indicated. Other operations were best left until quiescence was well established. When the activity of the arthritic process was on the decline, three procedures might be employed. The first was excision of a large sub-deltoid bursa. Such a bursa, often full of melon-seed fibrin bodies, was best removed, to permit an increase in the range of movement. Excision of the acromion process was necessary for adequate access. The second procedure, excision of the head of the radius, improved the range of rotation. The third procedure was synovectomy of the knee. Late operations were arthrodesis, arthroplasty, amputation of toes and osteotomy of the spine. Dr. Law took the elbow joint as a suitable basis for discussing the pros and cons of arthrodesis and arthroplasty. He said that in a labouring man or in a person engaged in hard work, a stiff joint in the desired position was a better proposition than the result given by arthroplasty. Arthroplasty was certainly not advised for a sufferer who expected to use crutches. Referring to amputation of toes, he said that in a deformed, painful foot with dorsal dislocation of all toes, gratifying results were obtained by ablation of all toes. At the same time, the under prominence of each metatarsal head was removed. A moulded leather forefoot was subsequently worn in the shoe.

Dr. Law then said that he had never performed osteotomy of the spine. It was indicated when curvature was such that there was difficulty in the patient's seeing the horizon. If one regarded ankylosing spondylitis as a variant of the rheumatoid diathesis, then that operation came into the realms of the discussion. Dr. Law finally said that rheumatoid arthritis patients were often anæmic, and it was advisable to maintain the hæmoglobin value at 70% prior to surgery. A combination of stilbœstrol and testosterone, as in "Mepilin" or "Mixogen", aided in the promotion of protein anabolism. Thus osteoporosis was counteracted.

W. E. SPRING (Victoria), in opening the discussion, said that a satisfactory operation for advanced claw toe deformity with prominent metatarsal heads was resection of all metatarsal heads. Patients were made much more comfortable by that procedure and were able to get their feet into more reasonable shoes. He thought that amputation of all the toes was better reserved for those cases in which the toes were clawed under the foot. Function of the foot after amputation of all the toes was surprisingly good.

*The Local Treatment of Joint Disease.*

SELWYN NELSON (New South Wales) read a paper entitled "The Local Treatment of Joint Disease". He said that local treatment included all physical, mechanical and chemical methods of treatment aimed at the production of regional benefit in affected musculo-skkeletal structures. Most patients with chronic arthritis or allied disorders required energetic local treatment in addition to the general medical treatment. It was necessary for the patient to be properly and carefully instructed in the methods of treatment and in the reasons for the various procedures, as success would depend on active cooperation. The objectives of physical treatment in arthritis were the prevention of deformity, the relief of pain and inflammation and the restoration of impaired function of muscle and joints. The available methods included local injections of hydrocortisone and similar substances, joint aspiration, joint manipulation, various forms of splinting, application of heat, ionization, exercises, the use of special apparatus such as braces and corsets, and faradism and galvanism. Each region of the body presented special problems. The hands and wrists responded poorly to forced movements. Manipulation of stiff fingers might result in aggravation of the stiffness. In osteoarthritis affecting the hands, paraffin wax baths and active exercises gave relief from the pain and stiffness. The first carpometacarpal joint was difficult to treat, but often responded well to a local injection of hydrocortisone. In rheumatoid arthritis in the acute stage the plaster of Paris cast kept on for a week might be invaluable. It could be replaced by a removable splint when the active inflammation had settled down. Tendon-sheath involvement in the hands in rheumatoid arthritis might respond dramatically to injections of hydrocortisone. The knee joints presented special problems. In rheumatoid arthritis it was important to arrange the posture of the patient so that flexion deformities were avoided. Wasting of the quadriceps occurred quickly in any affection of the knee joint, and could be treated by quadriceps exercises. Occasionally in obese, menopausal women, the apparent trouble in the knee joint might in fact be due to a painful pad of fat on the medial aspect of the joint, or the capsule in that region might be painful. Localized tender areas in that region of the capsule should be sought by careful palpation and injection with 0·5 to 1·0 millilitre of hydrocortisone suspension. The injection should be put into the attachment of the capsule to the bone. Histamine ionization was a valuable method of treatment in menopausal "arthritis", the electrode being placed over 2% histamine ointment. In some cases headache might follow the use of this treatment.

Dr. Nelson went on to say that the hip joint was a difficult joint to treat in both osteoarthritis and rheumatoid arthritis. Pain in the joint was usually better treated by analgesics or "Butazolidin", but sometimes it was relieved by the local application of heat. Short-wave or ultrasonic therapy in his experience was disappointing. Local injection of hydrocortisone often gave relief, but the technical difficulties of getting the needle into the joint were very great. Proper relief of pain would often improve mobility of the joint when restriction was due to muscle spasm; then non-weight-bearing exercises might be of benefit.

Referring to pain in the back, Dr. Nelson said that a careful analysis of the symptoms and signs together with examination of radiographs should enable the physician to evaluate the mechanism of the complaints of the patient. Certain types of pain and stiffness were especially suitable for local therapy. Manipulation would free adhesions in the small joints and between muscle groups and give relief when other measures failed. In some cases, back pain was due to local trigger zones in lumbar or sacro-iliac regions, which responded to local injections of procaine. Short-wave diathermy might be useful for osteoarthritis or lumbago. Localized lesions—prolapsed intervertebral disk and spondylolisthesis—might need attention to the mattress, a firm kapok mattress on a board base being preferable to a spring mattress on a spring base. The use of a corset or brace might be necessary. The temptation to regard every painful back as being due to a disk lesion must be avoided.

Dr. Nelson then discussed the painful shoulder. He said that true arthritis of the shoulder was comparatively rare as an isolated phenomenon. Periarthritis involving the extracapsular structures was the commonest cause of pain and stiffness of the shoulder, and was preeminently an indication for active local treatment. The structures likely to be affected included the supraspinatus tendon, the tendon of the long head of the biceps and the subacromial bursa. In addition, the secondary contraction of the inferior part of the capsule of the joint might need assisted combination exercises. Local hydrocortisone injections might be used in any of the regions mentioned.

Dr. Nelson, in conclusion, urged those present, in prescribing local forms of treatment, to see that the patient did not lose by fatigue the benefits conferred locally by physical treatment. Local treatment was only part of the over-all programme, which must be designed individually for each patient.

R. THOMPSON (New South Wales), in opening the discussion, said that he wished to raise the question of lavage of subacute swollen knees in rheumatoid arthritis. Splintage and four intraarticular injections of hydrocortisone were used. Paracentesis with two large needles and even two trochars and canulæ was impossible because of thick debris and oatmeal-like synovial fluid. Dr. Thompson referred to the previous paper read by Dr. Law, and asked him to describe the method of opening the joint and of lavage mentioned by him.

W. E. SPRING (Victoria) said that arthritis of the carpometacarpal joint could be relieved and movement improved by resection of the multiangular bone (trapezium).

## SECTION OF MEDICINE AND EXPERIMENTAL MEDICINE, SECTION OF RADIOLOGY AND RADIOTHERAPY AND SECTION OF SURGERY.

### Carcinoma of the Lung.

A COMBINED MEETING of the Section of Medicine and Experimental Medicine, the Section of Radiology and Radiotherapy and the Section of Surgery was held to discuss carcinoma of the lung.

H. M. RENNIE (New South Wales) read a paper entitled "Some Problems of Lung Cancer—A Physician's Point of View". He said that there were many problems concerning the rapidly increasing incidence of lung cancer. Referring first to ætiology, he said that there appeared to be several important factors. The first was the existence of a statistical relationship between cigarette smoking and lung cancer in males. The second important fact was the higher incidence of lung cancer in the cities; the question arose whether that was due to atmospheric pollution. The third observed fact was the changing sex incidence, there having been a rapid increase in the disease in males in relation to the incidence in females. Discussing diagnosis, Dr. Rennie said that when treatment was possible, the diagnosis was often made only by routine radiological examination, but awareness of the disease was of great importance. The differential diagnosis included pneumonia, tuberculosis, simple tumour, hydatid disease, toruloma, paraffinoma, infarction, foreign body and other mediastinal tumours. Among the diagnostic procedures were Papanicolaou staining, bronchoscopy, gland biopsy, thoracotomy and examination of frozen sections of biopsy specimens. Dr. Rennie then said that the treatment of lung cancer was surgical. Occasionally irradiation might effect a cure, but that form of treatment was best suited to palliation. Treatment with radioactive colloidal gold was sometimes useful, but nitrogen mustard had proved disappointing. Discusing the prognosis, Dr. Rennie submitted five recommendations, which he considered might effect an improvement. The first two came under the heading of prevention. (i) All those who wished to smoke should be advised never to exceed 15 cigarettes per day. (ii) Atmospheric pollution by potential carcinogenic agents should be prevented at their source. Under the heading of early diagnosis there were two recommendations. (iii) All heavy smokers of cigarettes (20 or more per day), whether male or female, should undergo an X-ray examination of the chest every six months, and all films should be made available for comparison. On recognition of any suspicious lesion, the patient should be promptly referred to his medical adviser. The final recommendation concerned early treatment. (iv) The thoracic surgeon should be given an early opportunity to explore the chest, and often before a definite diagnosis was made. At least eight out of every 10 patients submitted to thoracotomy on suspicion of the diagnosis would be found to have malignant disease, and the chance of cure was then immediately at hand.

M. G. F. DONNAN (Western Australia) presented a paper entitled "The Limitations of the Radiological Method in the Diagnosis of Carcinoma of the Lung". He said that the suggestion had been made that advance in knowledge and increasing experience had done little to simplify the radiological diagnosis of cancer of the lung and that it was only by constant awareness of the possibility of a shadow of indeterminate nature in the lung being a cancer that early diagnosis would be made and treatment initiated. The absence of radiological evidence did not exclude advanced cancer of the lung. With the aid of a series of illustrative cases, Dr. Donnan then urged the necessity for an adequate radiological examination, and discussed the confusion caused by other predominant disease. He illustrated the danger of uncritical acceptance of authority, emphasized the frequency of lung cancer presenting as an abscess, demonstrated the possibility of lung cancer presenting radiologically as pulmonary ischæmia, and finally described the difficulty of recognizing the nature and significance of remote metastases of lung cancer. In conclusion he drew attention to the importance of being ever alert to the possibility that a shadow of doubtful nature might be cancer.

JOHN HAYWARD (Victoria) read a paper entitled "Some Observations on the Pathology and Treatment of Carcinoma of the Lung". He said that to him the surgery of carcinoma of the lung was the unhappy part of thoracic surgery, and he did not think that improvements in surgery or radiotherapy would materially improve the results. Dr. Hayward pointed out how statistics of five-year survivals could be misleading in the direction of unjustified optimism. The investigation and treatment of patients with lung cancer were very expensive and brought a poor return; but the work must go on, since no one should be denied his chance of surviving. Even earlier diagnosis would not make an appreciable difference in the depressing results; however, teaching and propaganda among medical men were obviously desirable, so that they should not overlook significant early symptoms and signs. Propaganda to the public was a different matter; it could too easily become a form of scaremongering, encouraging hypochondriacal fear. That might be justifiable if the early symptoms were not vague and apt to be produced by other diseases, or if good treatment could be offered; but those things were not so. However, there was no doubt that atmospheric pollution, including tobacco smoke, played an important part, and all steps should be taken to minimize it. Dr. Hayward then briefly described a few aspects of the pathology of carcinoma of the lung, and discussed the selection of patients for surgical treatment. He said that growths were frequently inoperable long before any bronchoscopic signs of inoperability had appeared, and the decision to operate had to be made in an atmosphere of uncertainty. The doubtful cases fell into two rough groups, those in which the diagnosis was not proved, and those in which the diagnosis was proved, but the operability of the growth was doubtful. Referring to the first group, Dr. Hayward deplored the attitude of physicians and general surgeons who assumed that an exploratory thoracotomy would provide necessary evidence; he showed how it was necessary for the surgeon to carry out deeper exploration and sometimes excise a lesion to make a firm diagnosis, and pointed out that resection of an area of chronic pneumonia, for example, was associated with an appreciable mortality and a relatively high morbidity. With regard to the second group, Dr. Hayward said that if the patient's physician or relatives asked the surgeon whether he was quite sure of the condition, he had to admit that certainty could be obtained only by the performance of an exploratory operation, which might or might not be useless, and which certainly produced some pain and discomfort. There was no firm answer to the question whether or not operation should be performed.

However, Dr. Hayward thought that when clinical judgement made the surgeon reasonably sure that the lesion was not a carcinoma, he should be prepared to take the awful responsibility of advising against operation. Likewise in proved cases of carcinoma of doubtful operability, discretion should be used. When cases were borderline from other points of view, it seemed better to take the responsibility of refusing operation. Dr. Hayward then discussed in some detail the criteria for operability and inoperability of lung carcinomata, and gave some indications of the extent of the procedures used in various circumstances. Discussing radiotherapy, he said that it should be regarded as palliative only, and it should be withheld until there were symptoms to be relieved by it. The radiotherapist should keep his patient under supervision, and reduce or stop the treatment if it was only adding to his misery. Chemotherapy with compounds of the nitrogen mustard group, sometimes combined with radiotherapy, might help to inhibit anaplastic growths.

Dr. Hayward then discussed in some detail the management of the patient with inoperable cancer of the lung; he said that such management was a subject seldom mentioned. He spoke of the plight of the patients who had been referred back to their general practitioners after an exploratory thoracotomy which revealed an inoperable growth, and had been told that nothing could be done for them. Dr. Hayward said that such patients returned to him in despair, and he had occasionally had to assume responsibility for their management. It was not true that nothing could be done for them; a great deal could be done to relieve their symptoms and to make their remaining earthly life reasonably comfortable. Dr. Hayward described the methods that he had worked out, which included advice to the patient's relatives, the psychological care of the patient (with due regard to keeping him as active as possible for as long as possible), and the measures that could be employed to relieve his symptoms until his death.

PETER BRAITHWAITE (Tasmania), in opening the discussion, said that the subject had been so fully covered by the previous speakers that there was very little to discuss. He wished to emphasize one or two points as he saw them as a surgeon. He was not in a position to discuss the ætiology, being a nicotine addict, except to say that at the present time they had a much better story to tell the children than the old one about "stunting your growth". His own children were encouraged to discuss "Daddy's cancer" in disparaging terms. With regard to diagnosis, Dr. Braithwaite said that the modes of presentation and methods of investigation had been fully outlined. He was not concerned with the surgical possibilities of a man presenting for the first time with secondary deposits, but there was one point with which he was very much concerned. In some cases there was a point in time at which a patient with an operable carcinoma, a doctor and an adverse X-ray picture got together. The condition was investigated or watched—a criminal procedure—or treated as something else, until it became inoperable. He could quote cases from even the best regulated clinics. In such cases he demanded pathological proof of the diagnosis within six weeks, the time it took to culture tubercle bacilli, and if he could not get it with a bronchoscope, he got it with a scalpel. The main cause of those tragedies was a lack of awareness of the possibility of carcinoma in the front of the examiner's mind. To that end they had in Hobart invented two pieces of equipment. The first was a divining rod, invented by Dr. D. J. Rae, and as surely as that instrument was passed across every X-ray film showing a localized lesion, carcinoma would not be forgotten. The disadvantage of that instrument was that it was cumbersome and tended to be disregarded as the joke wore off. The second was a rubber stamp bearing the word "undiagnosed". That was stamped on the card of every patient with that type of X-ray picture, and only when pathological proof had been obtained was it crossed out. The clinician thus had a constant reminder, and if he erred he had no vestige of an excuse.

With regard to treatment, Dr. Braithwaite said that he supposed it should be a cancer operation—a radical pneumonectomy—so long as the patient lived and was not a respiratory cripple. It was there that the art of surgery came in. Pneumonectomy was a lethal procedure carrying a mortality of 10% to 20%. Lobectomy, even in the aged, was such a benign operation that the mortality should be very nearly nil. He thought that one of the duties of the surgeon was to classify his potential pneumonectomy cases into those in which he expected a mortality rate below 5% and those with a mortality rate over 25%. For the second group he was sure that a limited operation of lobectomy or segmental resection with dissection of glands gave better results.

Dr. Braithwaite finally introduced the question of solitary secondary neoplasms of the lung, many of which were cancers. He said that the published results indicated that with surgery the outlook in those cases was far better than in cases of primary carcinoma. That was to be expected, because the relationship of host and cancer had already established that the growth was relatively benign, in that only one secondary deposit, instead of showers, had been produced. The treatment was lobectomy and had a very low mortality; after the operation the patient, from being a "hopeless case" became a "favourable statistic". He had had only four cases himself. One patient was inoperable. The others, aged 37, 68 and 73 years at the time of operation, were doing well, with no sign of recurrence, one, two and three years after lobectomy.

MAURICE JOSEPH (New South Wales) said that very rarely was a diagnosis of carcinoma of the lung made before some radiological abnormality was apparent. However, a persistent wheeze should arouse suspicion. He mentioned one case in which a bronchoscopic examination was performed on account of that symptom and a small squamous carcinoma was discovered. An area of localized emphysema, which could best be displayed by taking a film in full expiration as well as full inspiration, was occasionally an early transient sign of carcinoma. Dr. Joseph also said that a history of a recent clear chest X-ray film should not put one off the scent, and mentioned the case of a man who had a normal chest X-ray film in October, yet three months later was found to have a lung carcinoma which proved to be inoperable. On the other hand, some bronchial carcinomata were very slow growing, and even after producing a steadily increasing lung shadow for as long as five years might still be operable. Dr. Joseph finally supported Dr. Donnan's statement that bronchial carcinoma arising in the middle lobe bronchus was not as rare as some authors held.

JOHN MORRIS (Tasmania) said that he welcomed Dr. Hayward's approach to the patient with hopeless cancer because of its great value, particularly as that subject was rarely dealt with. He thought that such instruction would be of great value if given at the undergraduate level also, where that problem was even more neglected. Dr. Morris further said that the term "five-year cure", which was frequently used in cancer statistics, had been rightly criticized by Dr. Hayward. The word "cure" was an absolute term which could not be qualified by a time limit. That terminology was therefore incorrect and misleading. Dr. Morris made a plea for abandoning the use of the term, and replacing it by "five-year survival".

H. HOLDEN (Tasmania) said that radiotherapy had made no contribution to the symposium. It seemed relevant to remark that the enormous pressure of cases of carcinoma of the lung in England had led to many investigations to find more effective methods of treatment. Radiotherapy took a prominent part in the programme, and so far it had not proved curative, but of great palliative value. Dr. Holden said that in an attempt to make progress, out of a series of 200 patients in two years, only four, who had lesions of borderline operability, were selected for radical X-ray treatment. All four subsequently were subjected to pneumonectomy, and two had survived for three years and two for two years when they were last examined two and a half years prior to

the Congress. Dr. Holden thought that perhaps, in careful cooperation of that kind between thoracic surgeon and radiotherapist, effective means of treatment would be found.

EUGENE MCLAUGHLIN (South Australia) said that early diagnosis of carcinoma of the lung depended on education of the public, and on the awareness of the general practitioner of significant symptoms and his knowledge of how sputum, pleural fluid, etc., should be collected for pathological investigation. Often a negative X-ray finding was taken as final. Pulmonary fibrosis and unresolved pneumonia would ordinarily not occur if correct after-treatment followed all acute pulmonary infections; but in general practice that was often not given.

*(To be continued.)*

# Correspondence.

## OPERATIONS FOR PEPTIC ULCER.

SIR: The "Review of 1094 Operations for Peptic Ulcer" by Derick Yeates and Robert Shannon (M. J. AUSTRALIA, May 17, 1958) is a most useful appraisal of work done by well-trained surgeons working in one of Australia's leading teaching hospitals. From the number of elective operations performed for peptic ulcers in this large hospital during the five-year period under review, it is apparent that a very conservative attitude has been the policy. One wonders if perhaps the rigid criteria for surgery in duodenal ulcer will be relaxed in the future, especially in view of the satisfactory mortality rate. It would seem that our surgical brethren in England and America are attacking peptic ulcers with far greater enthusiasm than we are locally. It is salutary to note the high mortality in the emergency operations for bleeding, and I feel that the majority of surgeons have shared a similar experience. How can this problem be improved? I feel that our medical colleagues are still far too reluctant (perhaps too frightened) to consult with a surgeon on a case of bleeding peptic ulcer. Immediate surgical consultation would seem a wise policy, and perhaps, by earlier operation, the mortality rate of 23·5% may be reduced in the future. Many of us would be interested to know the mortality rate and experience obtained in "blind gastrectomy" for hæmatemesis during this period. This remains one of our greatest problems in management.

The incidence of only one case of intestinal obstruction during the post-operative period is extraordinarily low. When the long-term review of these cases is carried out the incidence of "bolus obstruction" will be worthy of comment, as this complication seems to occur more frequently than suspected. The number of deaths following operation for perforated ulcer shows the general lowering in the mortality rate for this complication. There is no comment made upon the number of immediate gastrectomies performed for perforation. In many large centres immediate gastrectomy in properly selected cases of perforation is gaining in popularity and the reported results are gratifying. In fact, some surgeons have reported a higher mortality rate for perforated ulcers treated by simple closure than by gastrectomy.

It is a pity that we do not see more of such excellent reviews from Australia's teaching hospitals.

Yours, etc.,

201 Wickham Terrace,
Brisbane,
May 22, 1958.

DANIEL LANE.

## THE ASSOCIATION, THE COLLEGES, AND THE FUTURE.

SIR: In his presidential address to the New South Wales Branch of the British Medical Association, Dr. A. W. Morrow stated it was likely that the Association would gradually relinquish certain fields in which it had been active in the past.

This is so, particularly in regard to post-graduate education, an activity for which the B.M.A. was largely responsible for many years. Medico-politics, ethics and public relations, however, are likely to remain activities of the Association.

The College of General Practitioners, for its part, has always stated clearly that its work is concerned with the academic aspects of general practice and that medico-politics should be left to the B.M.A. Many of us believe, moreover, that the disabilities under which our colleagues in Britain are working at present are directly due to the fact that the Royal College of Physicians did not accept that principle, and, at a moment of crisis, took unilateral action which brought about nationalization, not only of their own members and Fellows, but of the whole profession in Britain.

In common with many other general practitioners, I was deeply sorry that the Federal Council of the B.M.A. rejected the request of the College of General Practitioners to have a section of general practice included in B.M.A. congresses. The College is most anxious to retain the plenary sessions which are attended by all members and at which specialists and general practitioners can discuss and pool their experiences and opinions on subjects of common interest.

All that was wanted in a section of general practice were one or two sectional meetings where problems essentially of interest to general practitioners could be discussed among themselves. I feel it was wrong to deny general practitioners such a forum. The very fact that a section of general practice has been included at the annual meetings of the parent body of the Association for some years and has proved an unqualified success speaks for itself.

I hope Federal Council will reconsider its refusal to have such a section of general practice at future congresses, or at any rate give it a trial at the next congress, after which its value or otherwise can be assessed.

Yours, etc.,

57 East Street,
Ipswich,
Queensland.
May 23, 1958.

H. S. PATTERSON.

## DETERMINATION OF BLOOD VOLUME.

SIR: Miss Crawford and Dr. de Gruchy are to be congratulated on presenting so clearly their techniques for determining blood volume and red cell survival using radioactive chromium, and for drawing attention to the condition of polycythæmia and stress (M. J. AUSTRALIA, May 17, 1958). There is no doubt that radioactive tagging provides the best method for following the survival of red cells, but readers should be aware that other satisfactory methods exist for measuring blood volume and that it is not always easy to decide whether or not a measured blood volume is normal.

Injection of a blue dye, Evans Blue, can be used to measure plasma volume with reasonable precision and with equipment and skills which might be available in some laboratories which are unable to cope with radioactive methods. The results are not dissimilar, though it is usually found that the dye method gives slightly higher figures for plasma volume. Applying the same corrections to the venous hæmatocrit as used by Crawford and de Gruchy, our own results in "normal" hospital subjects[1] are comparable with theirs as follows:

| Method. | Red Cell Volume. (Millilitres per Kilogram.) | Plasma Volume. (Millilitres per Kilogram.) | Total Blood Volume. (Millilitres per Kilogram.) |
|---|---|---|---|
| Radioactive chromium .. | 27·7 | 41·3 | 69·4 |
| Evans Blue dye .. .. | 27·5 | 47·8 | 75·3 |

These figures are substantially the same as were found by Steinbeck in other Australians.[2,3]

The difficulty in deciding about normality is that plasma and blood volume are not strictly related to total body weight in the simple fashion implied by the table above. It depends on the composition of the body, especially the amount of poorly vascularized fat included in the total weight. Very fat individuals often have less than 40 millilitres of plasma per kilogram of total body weight, while lean persons may have more than 50 millilitres per kilogram

[1] Whyte, H. M. (1956), *Australasian Ann. Med.*, 5:192.
[2] Steinbeck, A. W. (1950), *Australian J. Exper. Biol. & M. Sc.*, 28:477.
[3] Steinbeck, A. W. (1954), *Australian J. Exper. Biol. & M. Sc.*, 32:95.

and proportionate differences in total blood bolume. It is better to describe the normal plasma volume by a relationship such as (34·7 × body weight (kilograms) + 767 millilitres) or blood volume as (56·4 × body weight + 1382 millilitres) (Whyte, 1956), even though this does not deal completely with the problem of fatness.

Another query which arises when the patient's weight has changed, as is often the case with hospital patients, is whether to take the present weight, or original weight, or even the "standard" or "ideal" weight for age and height, as the basis for estimating normal volume. Our own observations clearly favoured the present weight.

These pitfalls in estimating the expected normal red cell, plasma and total blood volumes for any particular individual are not usually of great consequence, but it is as well to take some heed of them when diagnosing a condition such as polycythæmia of stress, the sufferers from which are not infrequently obese.

Yours, etc.,

MALCOLM WHYTE.

Clinical Research Department,
Kanematsu Institute,
Sydney Hospital.
May 26, 1958.

# Notice.

## HEALTH EDUCATION SUMMER SCHOOL.

THE Central Council for Health Education in England is holding its 1958 summer school from August 19 to 29 next at Bishop Otter College, Chichester. This school will be organized as a study conference on the theme "The Science and Art of Health Education". The accent will be upon practical tuition to give participants an over-all view of contemporary developments in health education and to equip them with skill in the methods and techniques of modern health teaching which can be applied on return from the school to work in the field. A large number of doctors, nurses, health inspectors, teachers, industrial welfare workers and other key people from overseas as well as from the United Kingdom participate annually in this school, which has become an international conference for the pooling of experience and discussion of health education problems.

The inclusive fee for tuition and residence is £22 (sterling).

Full particulars can be obtained from the Medical Director, The Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1, England.

## THE COLLEGE OF RADIOLOGISTS OF AUSTRALASIA.

### The Thomas Baker Memorial Fellowship for Radiologists.

THE Council of The College of Radiologists of Australasia has been empowered by the trustees of the Thomas Baker (Kodak), Alice Baker and Eleanor Shaw Benefactions to select a Fellow for a period of study abroad. The purpose of the Fellowship is to allow a qualified radiologist to further his knowledge by study in the United Kingdom. It is not intended that the Fellow should obtain further academic qualifications during the tenure of the Fellowship; but he may arrange to stay overseas for a further period for this purpose. The conditions are as follows:

1. The Fellow shall be a British subject, a graduate of a university in Australia or New Zealand, and should hold the Diploma of The College of Radiologists of Australasia or a recognized radiological diploma, and the possession of a higher medical degree will be an advantage.

2. The Fellowship may be awarded in either of two categories:

(*a*) A qualified radiologist, preferably of one or two years' standing. The tenure of the Fellowship shall be from twelve to eighteen months. The value of the Fellowship is £2000 (Australian).

(*b*) A radiologist who has already attained junior consultant status. The duration of appointment may be from six to eighteen months. The Fellowship would

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED MAY 17, 1958.[1]

| Disease. | New South Wales. | Victoria. | Queensland. | South Australia. | Western Australia. | Tasmania. | Northern Territory. | Australian Capital Territory. | Australia. |
|---|---|---|---|---|---|---|---|---|---|
| Acute Rheumatism | .. | 2(1) | 3(1) | .. | 2(1) | .. | .. | .. | 7 |
| Amœbiasis | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Ancylostomiasis | .. | .. | 1 | .. | .. | .. | .. | .. | 1 |
| Anthrax | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Bilharziasis | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Brucellosis | .. | 2(2) | .. | .. | .. | .. | .. | .. | 2 |
| Cholera | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Chorea (St. Vitus) | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Dengue | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Diarrhœa (Infantile) | 5 | 12(11) | .. | .. | .. | .. | .. | .. | 17 |
| Diphtheria | .. | 1(1) | .. | .. | 2(1) | .. | .. | .. | 3 |
| Dysentery (Bacillary) | .. | 53(6) | 4(1) | .. | 6(5) | .. | 2 | .. | 65 |
| Encephalitis | 2 | 1 | .. | .. | .. | .. | .. | .. | 3 |
| Filariasis | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Homologous Serum Jaundice | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Hydatid | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Infective Hepatitis | 60(23) | 16(9) | 6 | 4(2) | 18(3) | 4 | .. | .. | 108 |
| Lead Poisoning | .. | .. | 3 | .. | .. | .. | .. | .. | 3 |
| Leprosy | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Leptospirosis | .. | .. | 2(1) | .. | .. | .. | .. | .. | 2 |
| Malaria | .. | .. | 1[2] | .. | .. | .. | .. | .. | 1 |
| Meningococcal Infection | .. | 1(1) | .. | .. | .. | .. | .. | .. | 1 |
| Ophthalmia | .. | .. | .. | .. | 1 | .. | .. | .. | 1 |
| Ornithosis | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Paratyphoid | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Plague | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Poliomyelitis | 1 | .. | .. | .. | .. | .. | .. | .. | 1 |
| Puerperal Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Rubella | .. | 9(6) | .. | 7(1) | 12(9) | .. | 1 | .. | 29 |
| Salmonella Infection | .. | .. | .. | .. | 1(1) | .. | .. | .. | 1 |
| Scarlet Fever | 26(12) | 41(33) | 10(1) | 11(2) | 4(3) | 2(1) | .. | .. | 94 |
| Smallpox | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tetanus | .. | 1(1) | 1(1) | .. | .. | .. | .. | .. | 2 |
| Trachoma | .. | .. | .. | .. | 1(1) | .. | .. | .. | 1 |
| Trichinosis | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Tuberculosis | 20(13) | 20(12) | 33(11) | 1(1) | 12(5) | .. | .. | .. | 86 |
| Typhoid Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Typhus (Flea-, Mite- and Tick-borne) | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Typhus (Louse-borne) | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Yellow Fever | .. | .. | .. | .. | .. | .. | .. | .. | .. |

[1] Figures in parentheses are those for the metropolitan area.
[2] Source of infection outside Australia.

be at least £1000, but may be of the full amount available, depending upon the length of time spent overseas. The candidate would be expected to state his intention in regard to the duration of his stay abroad when making his application.

Candidates shall indicate, when making their application, in which category they wish to be considered.

3. Preference will be given to applications made under category (*a*).

4. The Fellow must be prepared to take up the Fellowship and leave for overseas by July 1 of the following year after his election. He shall also give an undertaking that within two years of assuming the Fellowship he will return and engage in the practice of radiology in Australia or New Zealand for at least two years.

5. He shall furnish a report to the Council on his return.

6. The Fellow may elect to further his studies in either radiodiagnosis or radiotherapy.

Application forms may be obtained from the Honorary Secretary, The College of Radiologists of Australasia, British Medical Association House, 135 Macquarie Street, Sydney, and must be lodged with him by the last day of September, 1958.

### RANDWICK CHEST HOSPITAL.

THE Minister for Health has recently approved the change of name of the hospital hitherto known as "Randwick Auxiliary Hospital" to "Randwick Chest Hospital".

## The College of Radiologists of Australasia.

### EXAMINATION FOR DIPLOMA.

THE College of Radiologists of Australasia will hold examinations for Part I and Part II of the Diploma of the College, commencing on August 25, 1958. The examination for Part I will be held in the candidate's own State, and that for Part II will be held in Sydney. Full details and application forms are available from the office of the College, British Medical Agency, Twelfth Floor, 135 Macquarie Street, Sydney. Entry forms must be received at the office of the College in Sydney not later than June 30, 1958.

## Australian Medical Board Proceedings.

### CORRIGENDUM.

IN the issue of April 26, 1958, on page 586, the following paragraph appears in the second column:

> Registered medical practitioner who has complied with the requirements of Section 17 (3) and is registered under Section 17 (2a) of the Act: Richne, David, M.D., 1937 (Univ. Leipzig).

This information was taken from the *New South Wales Government Gazette* of March 14, 1958, where the name of the doctor concerned was printed as we printed it. The Secretary of the New South Wales Medical Board has now advised us that the spelling of the doctor's name should be Dichne, not Richne.

## Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Aitken, Eleanor McLaren, M.B., Ch.B., 1956 (Univ. Glasgow), 225 Lyons Road, Five Dock, New South Wales.

Ferrier, Melville Chaloner, M.B., B.S., 1952 (Univ. Queensland), 263 Maroubra Road, Maroubra, New South Wales.

## Deaths.

THE following death has been announced:

EDWARDS.—Frank Payne Edwards, on May 20, 1958, at Beaumaris, Victoria.

## Diary for the Month.

JUNE 10.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JUNE 12.—New South Wales Branch, B.M.A.: Public Relations Committee.
JUNE 13.—Tasmanian Branch, B.M.A.: Branch Council.
JUNE 13.—Queensland Branch, B.M.A.: Council Meeting.
JUNE 17.—New South Wales Branch, B.M.A.: Medical Politics Committee.
JUNE 18.—Western Australian Branch, B.M.A.: General Meeting.
JUNE 19.—Victorian Branch, B.M.A.: Executive Meeting.
JUNE 19.—New South Wales Branch, B.M.A.: Clinical meeting.
JUNE 20.—New South Wales Branch, B.M.A.: Ethics Committee.

## Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

*New South Wales Branch* (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales. Anti-Tuberculosis Association of New South Wales.

*South Australian Branch* (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

## Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

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